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economic and commercial news

CFTRI

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TURNKEY PROJECT FOR ELECTRONICS

The Electronic Corporation of India, Hyderabad, has bagged a turnkey project order from Arab Republic of Egypt for manufacture of geiger muller counters.

The International Atomic Energy Agency which has placed the order as part of its programme of assisting A. R. E. in peaceful use of nuclear energy have accepted the Indian offer in preference to quotations received from several countries including U. S. A. and U. K.

Under the order, the electronic complex at Hyderabad is to supply complete technical know-how and equipment for manufacture of geiger muller counters. These counters are complex and delicate equipment for monitoring radioactive deposits and aid in peaceful application of nuclear energy. The know-how for the equipment has also been developed by Indian scientists.

India exported electronic products worth about Rs. 40 million during 1970-71. Major items of export include radios/transistors, data processing machines, gramophone records, telephones, teleprinters and telegraphic equipment. The export value of radios and components which constitute the major export item under the industry is estimated to have reached a level of Rs. 15 million during 1970-71. A. R. E. and Sudan have emerged as the largest importers for Indian radios and transistors. Even a sophisticated market like U. K. has increased its import of Indian transistors and radios.

During the same year the export value of data processing machines was obout Rs. 14 million; gramophone records Rs. 3.32 million; telephones, teleprinters and telegraphic equipment Rs. 3 million; and public address equipment about Rs. 1.60 million.

The total output of the industry which was only Rs. 305 million in 1964-65 has now increased to about Rs. 1800 million. It is expected to increase to about Rs. 3000 million by 1975.

EXPORT OF SUGAR MILL MACHINERY

An order for a turnkey project has been recently secured by India for supply of a complete sugar plant to Uganda. The order is worth Rs. 26.4 million.

India's export of sugar mill machinery during 1970-71 was of the order of Rs. 1.77 million. Of this, the major intake was by Ceylon, which amounted to

The U.K's decision was to impose a 15% customs tariff on cotton fabrics, a 17% duty on cotton garments and a duty of 6½% on cotton yarn. The proposed customs tariff for commonwealth countries would be at the rate of 85% of the full rate of duty.

UPSURGE IN EXPORT OF ENGINEERING PRODUCTS

As at the end of September, 1971, the total export orders received by various engineering units in India total Rs. 1527.43 million, of which the value of the orders for execution during 1971-72 is Rs. 763.67 million.

During 1970-71, the total export of engineering products was Rs. 1165.86 million as against Rs. 1063.37 million in 1969-70. This reveals the continuous upsurge in the export value of engineering products year after year.

Of the export orders received during 1971-72, railway equipment and railway track materials lead the list. The orders received for railway equipment amount to Rs. 569.84 million of which Rs. 223.6 million worth is to be exported during 1971-72. The value of exports committed in respect of railway track materials is Rs. 25.63 million of which Rs. 18 million will have to be exported during 1971-72. East Africa, Ghana, Hungary, Iran, Kenya, Poland, Sudan, Iraq, Taiwan and Yugoslavia are the countries that placed orders for railway equipment while Burma and Iran were the parties desirous of importing railway track materials from India.

Wires and cables constitute the next important area for which a number of export orders have been received from A.R.E., Singapore, U.S.S.R., Turkey, German Democratic Republic, Iran, West Germany, Argentina and Yugoslavia. The export commitment for wires and cables is Rs. 385.25 million while the supplies to be effected during the same year total to Rs. 241.5 million.

Industrial plants form another area of export dynamism in the year. Textile machinery and components are to be exported to the tune of Rs. 117.57 million to Iraq, A.R.E., Burma, Ceylon, Libya, Ethiopia, Indonesia and Syria. Of this export value Rs. 41.34 million worth of machinery is expected to be supplied during 1971-72 itself.

Orders worth Rs. 122.6 were received for overseas supply of sugar and cement plants. One sugar plant is to be exported to Uganda at a value of Rs. 26.4 million and two cement plants to Kuwait and Iraq at Rs. 19.1 million and Rs. 36.8 million respectively.

From Malaysia, two orders were secured for export of boilers at a total value of Rs. 122.6 million. One of the two orders will be completely executed during the current financial year. The same country placed an order for purchase of water treatment plant at a value of Rs. 3.97 million.

A.R.E. and Afghanistan seek to import concrete vibrators and stone crushers worth Rs. 1.5 million and Rs. 0.16 million respectively.

Fabricated steel structurals constitute another active field of export in the year under review. Five countries viz. A.R.E., Ceylon, Iraq, New Zealand and Thailand placed orders for a variety of structural items including furnace structures, penstock pipes, etc. at a total value of Rs. 32.88 million. In terms of value, the A.R.E.'s is Rs. 13 million while that of New Zealand Rs. 9 million, Thailand Rs. 3 million, Iran Rs. 2 million and Ceylon Rs. 1.8 million.

Iran, Kuwait, Thailand, Malavi and U.S.A. are the countries that placed orders for the supply of transmission line towers and posts. The total value of the orders is Rs. 93.85 million of which Rs. 49 million worth of exports are to be effected in 1971-72 itself. Iran is the major party having placed two orders– one on a Bombay firm at Rs. 32.4 million and another on a Jaipur firm at Rs. 7.5 million. Thailand is also an important customer having placed 3 orders valued at Rs. 30 million, Rs. 5.5 million and Rs. 5 million. The supplies to Thailand are to be made by a Bombay and a Calcutta firm. U.S.A. desires to import the entire amount of their orders worth Rs. 10 million during 1971-72, from a Bombay firm. Kuwait and Malavi together have placed orders on a Calcutta firm worth Rs. 3.5 million.

Greece and Cyprus are two countries that are committed to import airconditioning and refrigeration equipment worth Rs. 1.4 million and Rs. 0.4 million, respectively.

Indonesia placed an order on a Madras firm for supply of bicycles and parts at Rs. 3.2 million.

A.R.E. and Iran desire to import iron and steel castings valued at Rs. 1.6 milllion and Rs. 7.7 million, respectively. Yugoslavia wants to import wire ropes worth Rs. 1.7 million.

Electric motors, transformers and switchgears constitute another active field of India's export trade during 1971-72, in which year the total value of export orders received amounted to Rs. 36.7 million. The importing parties are West Germany (Rs. 9.4 million), Ghana (Rs. 1.2 million), Kuwait (Rs. 1.3 million), Malavi (Rs. 1.7 million), Tanzania (Rs. 4.8 million) and Malaysia (Rs. 18.3 million). The Malaysian order is a repeat order. Ghana's order was for the import of motor pump sets and that of Kuwait was for transformers, switchgears and fuse boards while Tanzania's was for two large power transformers.

Among various other lines of manufacture for which the Indian engineering industry received orders during 1971-72 are automobile spare parts from Saudi Arabia, Nigeria, Sudan, Iran and Lebanon (Rs. 1.4 million); bolts and nuts from U.S.A. (Rs. 7.4 million); gas cylinders from A.R.E. (Rs. 7.5 million); tinplate trays from Iraq (Rs. 4.3 million); storage batteries from U.S.S.R. (Rs. 6.3 million); water metres from South Vietnam (Rs. 1.27 million); pressure vessels and structurals from Iran (Rs. 0.93 million) and construction material from Kenya (Rs. 10 million).

TEA EXPORTS BETTER

Improvement was recorded in tea exports at 189 million kg. during January-November 1971. This was higher than the export quantum of 183 million kg. in the corresponding period of 1970. In terms of value, export earnings were Rs. 1440 million and Rs. 1310 million in the comparable periods, thus indicating better realisation of unit value.

India will be able to fulfil the export quota of 253 million kg. available for the 15 month period ending March 1972, according to the Chairman of Tea Board.

Cumulative tea production in 1971 is expected to be about 430 million kg. against previous year's 419 million kg.

LIQUID CHLORINE FOR EXPORT

Liquid chlorine, a relatively new non-traditional item on the export list, holds out bright prospects as an important foreign exchange earner. The export of this chemical which was hardly Rs. 0.3 million in 1969-70 is expected to earn Rs. 2.0 million in 1971-72. Exports during April–November, 1971 have totalled Rs. 0.9 million which equals the earnings in the whole of 1970-71.

The chemical is extensively used in the Gulf countries for water purification and in oil refineries. The major buyer is Kuwait where there is an extensive plan for the expansion of oil output and water purification works. The brisk export of this chemical in the recent months is also attributed to the fairly comfortable supplies from domestic sources.

EXPORT GROWTH OF COIR MATS AND MATTINGS

In recent months, overseas demand for India's coir mats and mattings has registered an upsurge. During April-November 1971 their exports stood at Rs. 39.26 million against Rs. 34.5 million in the same period of 1970. World demand for Indian coir mats has particularly grown up to Rs. 34.5 million against Rs. 30.4 million. In the comparable periods the offtake of coir yarn was, however, marginally less at Rs. 40.5 million against Rs. 46 million.

Curled coir is another item for which export demand has gone up considerably – to Rs. 336,280 from Rs. 197,370. While export of coir rugs and carpets was more or less maintained, coir fibre, coir ropes have also been fairly active in the export trade.

In 1970-71, coir yarn fetched Rs. 9.4 million while coir mats and mattings Rs. 43 million and coir carpets and floor rugs Rs. 22.4 million.

The improved export performance of coir mats and mattings in recent months was mainly due to better exports to destinations like France, U.K. and Sweden. There was improvement in the offtake of the East European regions too.

ECONOMIC DEVELOPMENT AND INDUSTRIAL DIVERSIFICATION

STRESS ON SELF RELIANCE

The need for directing future economic development on the basis of maximum self-reliance was stressed by the Prime Minister of India, Mrs. Indira Gandhi.

Addressing the Planning Commission of India while considering the mid-term appraisal of the Fourth Five Year Plan, she said "Our plans cannot be based on the assumption that external aid is a permanent feature of our lives. External assistance has been to work as an instrument in the hands of foreign governments to be used at critical times to the disadvantage of the recipient country. Excessive dependence on foreign aid also develops an attitude of complacency towards inefficiencies in our economic system. In the Fourth Plan, we had already decided to adjust the economy to lower levels of external aid. It has become necessary to carry out further adjustment to still lower levels of foreign aid."

In devising appropriate policies for the economy, the Prime Minister enumerated three sets of factors viz the need to quicken the pace of self-reliance, the need to achieve the socio-economic aims of the Government already announced; and finally the need to provide assistance to Bangla Desh. "It has been sometimes assumed that foreign assistance is absolutely necessary to cover what is described as the trade gap. Actually it is mainly a saving gap. We should call less and less upon foreigners to add to the savings which we should generate ourselves. We did need external assistance in the past and we have put it to some effective use. The situation has now changed. *External assistance is decreasing. At the moment the net foreign aid constitutes less than 1 per cent (0.8 per cent) of our national income.* Indications are that this fraction will further go down", the Prime Minister added.

This was not to suggest that all forms of external assistance be denied to the country. "In some critical sectors and for specific purposes, we would welcome external assistance but it cannot continue to weigh substantially with our overall economic strategy. We have now a diversified economy which is in a good position to generate the necessary physical resources to become self-reliant. We have witnessed significant improvements in agriculture."

The country's economy was not taking full advantage of the productive assets which have already been created. There is under-utilised capacity in steel, fertilisers, machine tools, railway wagons, coal and some other important industries. In certain other important cases, capacity can be expanded with the import of small quantities of investment goods. All measures that will result in immediate maximisation of existing under-utilised capacity would have to be adopted.

The Prime Minister stated that the full utilization of capacity would have to be matched with greater efforts at resource mobilisation. The contribution of public enterprises would also need to be improved as major resource generators. Available human resources ought to be utilised to the utmost. The obvious need for greater expansion of employment has to be viewed in the context of regional imbalances. Emphasis on educational programmes should shift to primary education, adult literacy, vocationalisation of secondary education etc. which would bear impact on large masses of people. National health programmes would have to be oriented to rural conditions, the Prime Minister added.

RUPEE - STERLING PARITY TO BE MAINTAINED

The Government of India have decided to maintain the existing Rupee–Sterling parity (Rs. 18.9677 per pound), notwithstanding the proposed changes in the parity rates of currencies of some countries including the U.S. The U.S. proposal is to increase the price of one ounce of gold in terms of U.S. Dollar, from $ 35 to $ 38 i.e. by 8.57 per cent.

The U.K. and France have decided to maintain their official parity unchanged so that their currencies will appreciate by 8.57 per cent in relation to the Dollar. In the case of Germany and Japan, their currencies are to appreciate by roughly 13.57 and 16.88 per cent respectively in relation the Dollar. Simultaneously the 10 per cent in import surcharge levied earlier by the U.S. is proposed to be lifted.

In giving their approval to these changes, the International Monetary Fund (IMF) decided that, if necessary, other member countries might declare the exchange rate for their currencies provisionally in terms of the currency of another member. The Fund also decided to permit variations within a wider margin of 2.25 per cent of any rate now adopted by a member country.

On full consideration of the situation, the Indian Government have taken the above decision. The Minister of Revenue and Expenditure stated "At the present juncture it is all the more important that we determine our own action in terms of our basic objective of increasing self-reliance, i.e. increasing export earnings and import substitution." The Indian Government will, however, take advantage of the wider margin of 2.25 per cent permitted by IMF if considered necessary and desirable.

While continuity is being maintained in terms of the Rupee-Sterling rate, this will now imply a Rupee-Dollar rate at approximately Rs. 7.279 per Dollar as against Rs. 7.50 per Dollar which has been the case hitherto. India's maintaining the rate vis-a-vis Sterling, therefore, also implies an appreciation of roughly 3 per cent for the Rupee vis-a-vis the Dollar. Since other countries like India might take advantage of the wider margins, these rates can, of course, vary from time to time.

After the suspension of convertibily for the U.S. Dollar by the U.S. Government on August 15, a number of major currencies were allowed to fluctuate freely in relation to the U.S. Dollar whose formal parity with gold remained unchanged. The Government of India decided at that time to maintain the exchange rate for the Rupee in terms of gold and therefore in relation to the Dollar as well. Consequently, over the past few months, while the Rupee-Dollar rate has remained unchanged around Rs. 7.50 per Dollar, the exchange rate for the Rupee in terms of other currencies, such as Sterling, Mark, etc. has fluctuated in response to the change in the Sterling–Dollar or the Mark-Dollar rate.

The Rupee-Sterling rate has accordingly moved up over the past few months and in terms of the decision taken in August this year, the latest buying and selling rates announced by the Reserve Bank of India, prior to the realignment of parities of major currencies gave a median rate of Rs. 18. 9677 per Pound. This represents an appreciation of Sterling in relation to the Rupee by some 5.4 per cent as compared to the situation that prevailed before August 1971.

A PROFILE ON INDIAN SPICES

Considered as the home of quality spices, India produces almost all types of spices in sizeable quantities. Her share in total world production of spices is roughly about 30 to 40 per cent for black pepper; more than 60 per cent for cardamom; 80 per cent in Turmeric, 50 per cent in Ginger and 60 per cent in chillies. Coriander seed, cumin seed, fennel seed, fenugreek seed, cassia, tejpat, mace, celery seed and garlic etc. are among the other spices produced in India.

Production

The total annual average production of spices in India is roughly estimated at 800,000 tonnes. During 1969-70 actual prodution and cultivated area for important spices was: pepper 25,500 tonnes from 101,000 hectares; cardamom 2,300 tonnes from 75,420 hectares; ginger 19,250 tonnes from 19,620 hectares; chillies 389,700 tonnes from 655,300 hectares; and turmeric 118,700 tonnes from an area of about 58,900 hectares. The production of other minor spices is estimated at about 250,000 tonnes.

While pepper and cardamom cultivation is concentrated mainly in Kerala, Mysore and Tamil Nadu, ginger is also grown in other states like West Bengal, Himachal Pradesh, Orissa, Gujarat etc. The cultivation of chillies and turmeric is widely scattered throughout the country, Andhra Pradesh, Assam, Bihar, Kerala, Madhya Pradesh, Maharashtra, Mysore, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal being the important regions for these two spices.

Efforts are also being made to further improve the production of spices. Adoption of intensive cultivation practices such as improved manuring, plant protection, irrigation techniques etc., increase in area wherever considered necessary and use of high yielding improved varieties of seeds are some of the measures proposed for the purpose. Large scale multiplication and distribution of the new hybrid pepper, 'Pamiyur-1', which gives about four times the yield of the best existing variety is one of the important measures already adopted. It is proposed to achieve an additional production of 19,000 tonnes of pepper, 5,000 tonnes of ginger, and 15,000 tonnes of turmeric by the end of the Fourth Five Year Plan period (1973-74). As India is deficient in respect of tree spices, a total annual production of 20,000 seedlings of clove, and 10,000 seedlings each of nutmeg nd cinnamon has been targetted for distribution to rowers during this plan period. A programme for roduction of nutmeg grafts, which are early bearers, has also been envisaged.

In the case of spices blend also, India is an important producer and exporter. Curry Powder, which is a delicate blend of numerous spices in varying formulae is an Indian speciality. About 2000 tonnes of curry powder and paste are produced annually. In view of the growing world demand for spice extracts, India has recently started extraction of oils and oleoresins of spices. The country is expected to become an important supplier of spice extracts also in the near future.

End uses

Spices are essential ingredients in daily food of the modern world. Some of the spices are also used for other purposes. In the Middle East, Cardamom is used as a flavouring agent for Coffee. Ginger is used in soft drinks, alcoholic and non-alcoholic beverages, confectionery, pickles, syrup, and as a flavourant in food products. Turmeric besides being widely used as a condiment and for the preparation of pickles, curries, etc. is used as a natural dye in the pharmaceutical, confectionery and food industries as a safe colouring agent. Garlic, fennel, fenugreek, nutmeg, tejpat, coriander, celery, cumin etc. are also widely used in food preparations and also in the manufacture of medicines. On account of the flavour and medicinal properties, some spices are widely used in preparation of cosmetics, soaps, ointments, face creams, tooth paste etc.

Technological Research

The Central Food Technological Research Institute (CFTRI), Mysore, deals with the technological research aspects of the industry. The Institute has carried on research on the oil contents of various types of cardamom and has evolved a process to distill oil efficiently. This is important as the price of cardamom oil varies from Rs. 1,000 to Rs. 1,500 per kg. in the world market. The Institute has also standardised a method of producing white pepper without contamination of micro organism usual to the conventional setting method. The method consists in bleaching pepper followed by depulping. The volatile oil recovered from this process is used in meat seasoning and in perfumery industry. The London Market offers Rs. 400 per kg. of pepper oil.

Compulsory Quality Control and gradation

Abundant availability of numerous spices is not the only advantage enjoyed by India. With the most suitable soil and climatic conditions, India produces the best quality of spices. Malabar Black and Telicherry Extra Bold Pepper, Alleppey and Coorg Green Cardamoms, Cochin Ginger, Alleppey Turmeric etc. are well known trade names for best quality spices in foreign countries. With a view to ensure that only good quality spices are exported to foreign countries, exports of Pepper, Cardamom, Chillies, Ginger and Turmeric have been brought under the compulsory quality control and pre-shipment inspection. Grades have been prescribed by the Agricultural Marketing Adviser under AGMARK system. It has also been decided to bring all other important spices and curry powder under the Quality Control and Preshipment Scheme shortly.

To determine the specific quality of a consignment intended for export, representative samples are drawn at random for laboratory test and analysis. On the basis of such analysis appropriate Agmark grade lables are affixed to the consignment and grading certificates issued which are subject to check by the customs authorities before the shipment takes place. The Agmark graded standards for spices are decided upon by taking into consideration the important characteristics and after analysing large numbers of samples from different sources and places. The range of variation is thus determined forming the basis for grouping them under different grades. While framing grade specifications the view of the trade and the requirement of the importing countries are taken into consideration. The grade standards are reviewed frequently and revised according to the changing needs of the consumers and importing countries.

Performance and direction of export

As regards spices exports from India, these were higher during 1970-71 both in terms of quantity and value. A total of 46,373 tonnes valued at Rs. 378.6 million were exported as against 43,974.5 tonnes valued at Rs. 344.8 million exported in 1969-70.

Cardamom, Ginger, Turmeric, Curry Powder, Celery seed were the spices which registered record in export. Chillies, cumin seed, fennel seed were items with substantail rise during the year compared to 1969-70. Exports of Pepper, Fenugreek seed, Garlic and Cassia during 1970-71 were not, however, up to the level of 1969-70. India has, lately entered into an agreement with Indonesia and Malaysia, the other two major pepper producing countries, to set up a "Pepper Community" by co-ordinating their efforts towards research on production, new uses of pepper and stimulating consumption in traditional and new markets.

In 1970-71 export of cardamom was of the order of 1704 tonnes valued at Rs. 109.4 million as compared to 1229 tonnes valued at Rs. 90.2 million in 1969-70. Saudi Arabia, Sweden, Finland, W. Germany Kuwait, U.S.S.R., U.K., Afghanistan etc. are some of the important consuming countries of Indian cardamom.

The relative figures for chillies were 2,083 tonnes at Rs. 11 million and 2,022 tonnes at Rs. 9.1 million. There has been some fall in India's exports to Ceylon which is the major importer of Indian chillies. However, lately Indian Chillies have entered into new markets like U.S.S.R., U.S.A., German Democratic Republic, Belgium, France, and Philippines.

Ginger exports were substantially higher in 1970-71 with a turnover of 3,183 tonnes valued at Rs. 26 million compared to 1,233 tonnes valued at Rs. 12.3 million exported during 1969-70. West Asian countries are the most important region accounting for about 80 per cent of total exports.

Exports of turmeric registered an all-time record in earnings during 1970-71 with an export of 10,621 tonnes at Rs. 36.7 million compared to 7,026 tonnes at Rs. 36,2 million in 1969-70.

About 70 countries of the world import Indian turmeric. Important among them are the West Asian countries, U.S.A., Japan, Ceylon and Singapore.

Export of curry powder too registered an all-time record in 1970-71. 1712 tonnes valued at Rs. 7.5 million were exported as against the 1969-70 export of 1230 tonnes valued at Rs. 6.2 million. U.K. was the principal buyer of Indian curry powder followed by Australia.

Among other spices, exports of celery seed, cumin seed and fennel seed have also shown increase during 1970-71.

This uptrend in the export of spices is continuing during the current year also.

STANDARDIZATION
FURTHER PROGRESS

For a variety of new items the Indian Standards Institution have fixed standard requirements. Accessories for use in shuttles for jute looms have been standardized with prescription of requirements of accessories such as off-set tip, cover, cover lock, drag spring, pin and bristles. Specifications have been prepared for clearer cloth which is a thick fabric made of all wool with a short dense nap used for covering clearers in spinning and preparatory machines. Standard specifications have also been prepared for shuttles for hessian and sacking looms.

For pipe grip pliers, dimensions and requirements have been laid down on lines of the specifications fixed by the Canadian Government Specifications Board and British Standards Institution. Standards were also announced for the requirements of tommy bars for box spanners. Cotton spindle taps for jute textile mills constitute another item for which Indian standard specifications have been announced. Likewise shuttles for jute board looms also attracted the attention of the Indian Standards Institution for fixing of standards.

The requirements for two varities of covered electrodes for metal arc welding of structural steels have been laid down. The two varieties relate to the normal penetration and deep penetration electrodes for metal arc welding of mild steel as well as the normal penetration hydrogen controlled electrodes for metal arc welding of medium tensile steel. While fixing these requirements, the standards originally announced in 1957 underwent four revisions and the latest standard supersedes the earlier specifications.

Charts for recording meteorological instruments have also been standardized. The chartwise requirements have been specified for use with meteorological instruments for recording raingauge recording, bimetallic thermograph, hair hygrograph and aneroid barograph. With the increasing requirements for various types of charts for meteorological instruments in common use in India and in the interest of standardisation and accuracy of records obtained with these instruments, it became necessary to formulate Indian Standards for charts for these instruments.

Requirements and methods of tests for the performance of hand compression sprayer used for spraying pesticides in liquid form have been standardised too. Originally the specifications were announced for hand compression sprayers covering the requirements separately for the purpose of agricultural use and public health. Later these two standards were amalgamated into revised one covering the use of sprayers in animal husbandry and other fields as well. Keeping in view the indigenous availability of the sprayers the definition of various parts of the sprayer has been made clearer as also the range of pesticides.

In the leather industry, methods for carrying out physical testing of all types of leather have also been published. Earlier only the methods of sampling and test for vegetable and chrome tanned leathers and oil tanned leathers were standardized. Since then the International Union of Leather Chemists Society published a number of standards on testing of leather and all these methods have been incorporated in the revised Indian standard. Besides, certain methods of test have been adopted from American Society for Test and Materials, U.S.A. The standard method, provides for double hole stitch tear resistance test, measuring of area, width and thickness of leather units etc.

Among other products for which the Indian Standards Institution have prepared standard specifications are Fireclay checker bricks for open hearth furnace, Code of practice for packaging glass and glassware such as flat glass, tumblers, bottleware, vacuum flask refills, laboratoryware, electric lamps, and so on, and code of terms relating to glass packaging.

Another important development has been the standardization of master cartons for export of frozen sea foods. Requirements are now prescribed for corrugated fibre board outer containers for packaging for export of frozen shrimps in solid packs of 30 kg. to ensure that the cartons are sturdy and safe to withstand the hazards of long journey, as well as handling conditions from stage to stage. India exports large quantities of frozen shrimps and it became necessary to ensure the quality of cartons, till they reach destinations without being crumpled and torn and without loosened box strappings. The standard now prescribed will help achieve the proper quality of containers as also enable the trade to compete in international market.

Further details of the standards specified can be secured from the Indian Standards Institution, Manak Bhavan, Bahadur Shah Zafar Marg, New Delhi.

STEEL OUTPUT IMPROVES

Aggregate production of the three steel plants under Hindustan Steel Ltd., namely, Bhilai, Durgapur and Rourkela was 3.612 million tonnes of steel ingots, 2.645 million tonnes of saleable steel and 0.980 million tonnes of pig iron during 1970-71.

The corresponding figures for 1969-70 were 3.781 million tonnes, 2.785 million tonnes and 1.138 million tonnes respectively.

FERTILISER PLANT AT TUTICORIN

A Rs. 139.3 million fertiliser complex is being planned at Tuticorin in Tamil Nadu. The complex will be constructed and operated by the Southern Petrochemical Industries Corporation Limited.

The plant will produce daily 1,100 tonnes of ammonia. This will be used in the manufacture of both urea and complex fertilisers in further plants which are to be constructed.

The foreign exchange cost required for the construction of the ammonia plant will be met by contribution from the U.K.

A Rs. 126 million worth Indian Farmers' Fertiliser Cooperative project now being built in Gujarat is also coming up with British assistance. Construction of three ships for the Shipping Corporation of India and the Scindia Steam Navigation Company is another project with assistance of that country.

WELDING ELECTRODES

The production of electrodes has nearly doubled over a period of 8 years from 178 million running metres in 1963 to 316 million running meters in 1970. The increase in the number of units engaged in the line has trebled from 7 in 1963 to 20 in 1970.

The industry is practically producing all types of welding electrodes for various applications like welding of mild steel, high tensile steel, alloy steel and stainless steel for hard facing work etc. The concept of industrial designing is now fast changing resulting in substitution of more and more riveted structures with welded structures. Welding electrodes are, therefore, required by almost every project not only in the installation stage, but even there after for reclamation and repair work.

The industry does not need any foreign collaboration for ordinary mild steel electrodes. However, collaboration for highly sophisticated and special electrodes is still being considered.

The export performance of the industry has improved from Rs. 598,000 in 1967-68 to about Rs. 2 million in 1969-70 and more than Rs. 3 million in 1970-71. Arab Republic of Egypt with an offtake of more than Rs. 1.4 million was the principal buyer. The other leading importers for Indian Iron ore are Australia, Kenya and Thailand with import worth Rs. 12 million, Rs. 14 million, and Rs. 1 million, respectively.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL PROGRESS

RESEARCH IN WATER AND AIR POLLUTION CONTROL

The Central Public Health Engineering Research Institute, Nagpur, has developed a number of processes and carried out research/studies connected with control of water and air pollution. These are :

Membrane Filters :

The Institute has developed membrane filters from indigenous materials for bacteriological analysis of water. The performance of the filters is reported to be as good as that of imported ones.

The Institute has already applied for a patent. Such filters are said to have an annual demand of one million pieces in the country alone besides having a good export potential.

Synthetic Coagulant aid :

Two new synthetic coagulant aids CA-11 and CA-15 - have also been developed to economise on alum consumption in water treatment. Laboratory investigations on waters of turbidity more than 2,000 units have confirmed the efficacy of the product. These aids have been manufactured from indigenous materials.

Kit for estimation of chlorine in water :

A simple kit has been perfected for quick estimation of residual chlorine in water to check whether drinking water supplies are adequately chlorinated. Some 100 units are stated to have been sold and the report of their performance is satisfactory.

Use of sewage effluents for essential oil bearing plants :

The CPHERI at Nagpur has also conducted field trials on the cultivation of essential oil bearing plants like citronella and Mentha using sewage effluents. The trials havn shown that the yield obtained with raw sewage or sewage effluents from stabilisation ponds was 3,000 kg./ha more than the yield with plain water. Oil percentage on dry weight basis as well as on green weight basis varied from 0-54 with plain weight to about 0-64 with treated sewage effluents.

The Institute has also carried out studies on the characterisation of industrial waste effluents with a view to developing economic and efficient methods of their treatment. During 1970 waste effluents were studied from industries such as pulp and paper, textiles, rayon grade pulp, chemicals, fertilisers containing manoethanolamine, oil, instant coffee, sugar, distillery and breweries, vegetable and chrome tanning, slaughter house, cellulose and sago.

The Institute is also collecting data on common air pollution in several cities. It is expected to yield a rational basis for timely action to control various air pollutants and to keep local concerned agencies aware of the pollution status. In this context, the Institute has already applied for patent for its apparatus for recording wind velocity. It will greatly help micrometerological observations connected with air pollution studies.

IMPROVED SUBMERGED ARC WELDING FLUXES

The National Metallurgical Laboratory, Jamshedpur, has evolved a process for producing improved types of welding fluxes suitable for submerged arc welding, especially heavy structural and pressure vessels. The welding fluxes developed contain high manganese dioxide and are substantially non-crystalline and amorphous products.

Manganese ore, fluorspar, dolomite, limestone, magnesite, bauxite, chrome oxide, chinaclay, alumina, sodium aluminium fluoride, chromite, molybdenite, sphene, rutile, silica, sand, quartz, quartzite, iron ore, felspar, serpentine, granulated blast furnace slag, coke, zircon are among the ingredients required for the manufacture of fluxes.

The new process has been studied on laboratory scale, and the laboratory product has been found to give an excellent performance.

Jaw crusher, roll mill, pulverizer, a melting furnace, quenching tank, drier are the main items of plant and machinery needed in the process. All these items are available indigenously.

DEVELOPMENT OF CONTRA-ROTATING GENERATOR

The Inventions Promotion Board announced an award to a Nagpur party for developing a Contra-Rotating Generator/Motor in which the stator is made to rotate in the direction opposite to that of the rotor through bevel gear coupling. The new motor, of a specific power as compared to the conventional one, needs lesss raw materials and therefore is cheaper in construction, is more efficient with better electrical characteristics, affords better regulation and has a higher stability for steady state and transient conditions. The new motor has numerous and varied applications such as in frequency changers, low-speed motor drives etc.

NEW WATER HYDRANT

A Jodhpur party has invented a new "Water Hydrant" recently. The water hydrant eliminates wastage of water by restricting flow of water to a few litres at a time or stoppage of flow if the tap is kept open or removed altogether. The new hydrant is of great value in water scarcity areas such as deserts, hills etc.

DEVELOPMENT OF CYCLOTRON

The Bhabha Atomic Research Centre, Bombay is developing a Variable Energy Cyclotron which is a versatile particle accelerator for producing a wide range of particles with energies upto 130 meV, suitable for studying the effects of radiation. The Cyclotron provides research opportunities in the field of Isotope production, nuclear physics, nuclear chemistry, solid state physics and Bio-physics.

The Cyclotron development involves the design and manufacture of large coils with water-cooled conductors which are being designed and manufactured for the first time in the country. The Heavy Electrical India Ltd., Bhopal, will supply the Magnet Main Coils, Circular Trim Coils, Valley Coils and bus-bars. The Marnet Coils are in the shape of ton panakes, which, when excited, will produce an average magnetic field of 17,100 units. The shape of the magnetic field will be varied to suit different particles, by means of 17 pairs of Ciroplor Trim Coils and 5 pairs of Valley Coils mounted in three sectors. All these Coils are required to meet stringent electrical, mechanical, hydraulic and radiation requirements.

Design and manufacture of heavy electrical equipment covers a very wide range of technology, from special steels for high temperature applications to non-ferrous and precious metals: from mica to the most recent petrochemicals. Once sound basic technology has been established, it finds application in new fields.

INDUSTRIAL MACHINERY

India today has an efficient and organised production base for wide spectrum of Industrial machinery like textiles, jute, cement, sugar, tea, paper, chemicals, pharmaceaticals, coal mining and coal washery, fertilizers, dairy, food processing, leather, metallurgical, steel etc. A near stage of self sufficiency has been attained in many areas of industrial machinery. With 1960 as the base year, the index of production of machinery other than electrical increased to 291.2 in 1966, 327.6 in 1968, 349.1 in 1969 and 367.6 in 1970.

With growing emphasis laid in the sucessive Five Year Plans on the development of this sector, there has been a discernible progress in the quantum, range and competitiveness of the industrial machinery manufacture. The range of production has particularly expanded after the establishment of large engineering units in the public sector. Manufacturers in the private sector too have diversified their production capacity and many new lines including the manufacture of ancillary items have been developed. Such diversification while providing stability and viability to the industry has brought about scope for increasing import substitution and export potential.

Textile Machinery

The present licensed and installed capacities in respect of major items of machinery are of the order of Rs. 670 million and Rs. 470 million per annum respectively. The production during 1970 was of the order of about Rs. 260 million as against Rs. 197 million in 1969. In addition, the value of spares and accessories produced in 1970 was estimated to be around Rs. 250 million.

A wide range of textile machinery beginning from blow-room lines to carding engines and from high speed draw frames, fly frames and ring frames to doublers, completing thereby the need of the preparatory departments and spinning departments of the textile mills are manufactured. The industry also manufactures pirn winders and cone winders, sizing machines, and power looms. Automatic looms of various designs are also a part of the production programme and schedule of the industry. India manufactures almost all the wet processing machines required by the mills such as continuous and semi-continuous bleaching plants, open width as well as rope form, singeing machines, dyeing equipment, padders, open width washing machines, finishing equipment, baking machines, stenters, printing machines and calendars. Many ancillary equipment required by the dye houses are also manufactured.

Jute Mill Machinery

The indigenous capacity is now in a position to manufacture almost the complete range of jute mill machinery and meet the demand of the jute industry. Production during 1969 was of the order of Rs. 48 million. The manufacturers are turning out such types of machinery as spinning frames, carpet-backing looms, roll/cone winders – scroll and traverse bar type, copwinders, softeners, drawing frames, prebeaming machines and jute carding machines. The manufacture of broad looms has helped the Indian jute industry to produce carpet backing cloth of the required specifications of importing countries. The jute carding machines added to the production stream a few years back incorporate the new concept in jute card design with many new features for increased production and improved product quality. Continuous efforts are being made by the manufacturing units to reduce the import content of the jute machinery manufactured in the country. Apart from machinery all varieties of spares and accessories are also produced in the country.

Sugar Mill Machinery

Large scale production of sugar mill machinery commenced in the country during the Second Five Year Plan (1956-61). With seven firms manufacturing complete sugar plants and nine firms turning out various items of sugar mill machinery against specific orders, the instaslled capacity is of the order of Rs. 210 million. The actual production in 1970 touched Rs. 146 million as against Rs. 125 million in 1969, Rs. 113 million in 1968 and Rs. 106 million in 1967.

The sector has also achieved a high indigenous content for a complete sugar plant of 1250/2000 tonnes of crushing capacity per day. The import content is to the extent of Rs. 1 million (inclqding boilers) which is about 8 per cent of the value of the complete plant. Milling plants, boiling house equipment – water driven and electric driven, continuous centrifugals and sugar diffusion plants are now manufactured within the country. Large size pin type mills have also been designed and developed. The manufacturing units are now gearing up to fabricate and supply suger plants upto 3000/4000 tonnes per day crushing capacity.

Tea Processing Machinery

Manufacture of tea processing machinery has reached a high level of sophistication both in regard to the range and volume of production as also in terms of quality. The total installed capacity of six units in the line is of the order of Rs. 23 million and their output in 1970 stood at nearly 12 million. The tea processing machinery manufactured in India are heavy duty tea rollers for rupturing tea leaf cells, green tea leaf sifters, tea cutters, magnetic tea cleaners, CTC machines for crushing tearing and curing of tea leaves, CTC segments, CTC trolleys, multi-tubular and multi cellular air heaters, tea packers, fluff dust extraction plants, tea sorters, tea storage bins, tea leaf weathering machines, tea conveyors, conveyor rollers, etc.

Cement Making Machinery

With an installed capacity of Rs. 260 million, the actual production of cement machinery during 1970 was of the order of Rs. 81.4 million. The production of complete cement mill plant with high indigenous content has now started on an organised basis. Import content for complete cement plant of 600 tonnes per day capacity is of the order of Rs. 1.2 million for wet process and Rs. 1.9 million for dry process. The Indian industry today turn out complete cement plants, both wet and dry process, having a capacity ranging between 300 tonnes to 1000 tonnes per day.

Some of the existing factories can also take up the manufacture of shaft kiln plant with a capacity ranging from 30 to 200 tonnes per day. The necessary technical know-how for the design, fabrication and supply of complete shaft kiln plant on a turn-key basis has been developed in the country. The import content for the production of shaft kiln plant is also negligible. Besides complete cement plants, equipment, such as limestone crushers, grinding mills, rotary kiln clinker breakers and coolers, packing machines, etc. are also manufactured as individual items and supplied.

Chemical and Pharmaceutical Machinery

The total number of units licensed at present is 57 out of which 54 are in the private sector with a capacity of about Rs. 312 million and 3 unit in the public sector with a total capacity of 25,300 tonnes valued at nearly Rs. 177 million. The production in this industry has steadily increased from Rs. 50 million in 1963 to Rs. 170 million in 1970.

A notable development in this sector is the setting up of the Heavy Plate and Vessels unit at Vishakhapatnam with an ultimate capacity of 23,000 tonnes of machinery per year. This public sector project will mainly cater to the needs of the fertilizer, refinery. petro-chemical and organic chemical industries.

The manufacture cover diverse type of plants such as sulphuric acid plant, super phosphate plant, water treatment plant, pressure vesels, heat exchangers, distillation columns, fixed heaters, neutralisers, condensers, pumps and compressers, piping, etc.

Coal Mining and Coal Washery Machinery

Twelve units are already licensed for coal mining machinery. Of this 9 units are in production with a licensed capacity of about Rs. 277 million out of which installed capacity at present is Rs. 96.3 million. The actual production in 1970 was of the order of Rs. 21.5 million.

The industry is in a position to meet practically the entire requirement of coal mining machinery such as coal cutters, loaders, haulages, winders, coal combine, conveyors, mine pumps, axial fans, booter fans, shuttle cars, mine locomotives and so on.

In the public sector the Mining and Allied Machinery Corporation, Durgapur, is specifically designed to cater to the needs of coal mines with an ultimate capacity of 45,000 tonnes of machinery per year. A private sector unit has also developed roof bars for pit props, cage suspension gear, rope chappel and safety detatching books, etc.

Steel Plant Equipment

There are at present two units - one in private sector and the other in public sector-engaged in the manufacture of steel plant equipment. The private sector unit has a total annual licensed capacity of 12,000 tonnes of machinery per year covering not only steel plant equipment but also various other types of machinery. The ultimate capacity of the public sector unit, the Heavy Engineering Corporation, Ranchi will be 89,000 tonnes per year. This capacity is mainly for the manufacture of seel plant equipment, but they too have activities in other fields of machinery manufacture. The Ranchi unit is engaged in the supply of equipment to the Bokaro and Bhilai steel plants. The two units put together turned out about Rs. 116 million worth of steel plant equipment in 1970.

Building and Construction Machinery

With a licensed capacity of Rs. 79.5 million and an installed capacity of nearly Rs. 55 million the 17 units engaged in the manufacture of building and construction machinery had an output of about 13.5 milllon in 1970. The production range include such items as concrete vibrators, concrete mixers, asphalt mixers, roller pan mixers, bitumen boilers, stone crushers and granualators, portable crushing plants, weight batchers, prestressed concrete equipment, pile driving equipment, asphalt paver finishers, highway mixing and drying plant, vibrating earth rammers, etc.

Paper and Pulp Machinery

The manufacture of paper and pulp machinery started in the country in a regular way from 1960 onwards. The manufacturing units are now in a position to supply large, medium and small scale pulp and paper making plants. In addition, they are also in a position to supply board mill plants, paper coating plants, tissue making plants and a number of individual items such as brown stock washers, bamboo chippers, finishing refiners, screws, foundrinier wire cloth, etc.

The production in this sector has grown steadily from Rs. 13.4 million in 1963 to Rs. 34 million in 1970. There are 13 units in production with a total licensed capacity of Rs. 106 million and installed capacity of about Rs. 61 million.

Printing Machinery

With five units in production, the output of printing machinery in 1970 was of the order of Rs. 3 million. The installed capacity is around Rs. 8.5 million. The exsiting capacity being small, a few more schemes have been approved for the manufacture of different types of printing machinery.

Metallurgical Machinery

The I4 units in the line of metallurgical machinery manufacture had an out turn of nearly Rs. 29 million in 1970. The industry is well established especially in respect of manufacture of foundry equipment. The foundry equipment that are being manufactured are of different sizes and types and ranges from laddles, sand mixers and dryers to aerators, sand-riddles, sand mullers, multi-mulls, sand conditioning and preparation plants, crushers, etc.

Others in the production range are iron ore palletisation plants, mineral benefication plants, different types of mineral crushing and grinding equipment, alumina lime calcining kilns, air separators, etc.

Weighing Machinery

Four firms with a licensed capacity of Rs. 45 million per annum manufacture various types of weighing machinery including steel yards and platform type weighing machines, weight bridges, semi and self-indicating counter scales, spring balances, automatic balances, personal weighers, grain weighers milk weighing machines, baggage weighers etc. Besides, these types, new ranges of weighing equipment like automtic coal weighers, ratio counting scales, predetermined platform type scales, gross weighers, grain weighers, etc. for varied applications and requirements as per consumer specifications are also being manufactured.

Dairy Machinery

The total installed capacity of three manufacturing units of dairy machinery is around Rs. 26 million. The actual production during 1970 was nearly Rs. 24 million which was a notable improvement over the 1969 production at Rs. 13.2 million.

The demand for dairy equipment during the Fourth Plan period is estimated to be around Rs. 60 million. The existing units are gearing up to meet the increasing demand. Generation of additional capacity is also being undertaken.

The existing manufacturers are in a poition to design and engineer dairy plant of medium and large capacity and can also manufacture and supply various items of dairy machinery for the customers on turnkey basis.

Among the items produced special mention may be made of cream separators–both electric operated and hand driven. The Indian manufacturers can offer a modern multipurpose equipment for processing fluid dairy products which is designed to handle many duties efficiently. It makes an excellent batch pastauriser for milk and cream and is ideally suited for the processing of chocolate milk and ice cream mix. This unit is equally suitable for cream ripening. Stainless steel centrifugal pumps are also manufacturep to meet the most exacting demands as to hygiene. Road tankers for transportation of milk and other and automatic oil burners are also being manufactured in the country. Manufacture of coil winding machines have been diversified to three types from one type.

Research and Product Development

To obviate the need for dependence on foreign technical know-how & create a sound base for research and design development, the Central Mechanical Engineering Research Institute was established in 1958. The Institute has over the years concentrated on the development of hitherto imported machinery including generation of know-how for their commercial producttion and testing. With active collaboration with the industry CMERI has developed a variety of machinery, accessories and quality control equipment.

Export Performance

The export competence and competitiveness of the industrial machinery sector is fully reflected by the growing overseas demand for such machinery. During 1970-71 exports of various items of industrial machinery was about Rs. 94 million.

The major item of export was textile machinery which fetched Rs. 55 million. The performance of other industrial machinery was : asbestos cement plant and mill machinery Rs. 3 million; chemical plants 585,000; cigarette and match making machinery Rs. 786,000; cement mixers and concrete vibrators Rs. 434,000; food processing machinery Rs. 539,000; gas plant Rs. 159,000; grinding and polishing machinery Rs. 110,000; jute mill machinery Rs. 2.15 million; oil machinery Rs. 4.83 million; paper and pulp machinery Rs. 366,000; plastic machinery Rs. 337,000; printing and book binding machinery Rs. 312,000; razor blade manufacturing plant Rs. 389,000; reduction gears and parts Rs. 792,000; rice, dal and flour mill machinery Rs. 1 million; rolling mill machinery Rs. 1.26 million; shoe making machinery Rs. 419,000; sugar mill machinery Rs. 1.77 million; tea machinery Rs. 3.65 million; water treatment plant Rs. 932,000; weather treatment plant Rs. 1.17 million; wire making machinery Rs. 246,000 and other types of machinery Rs. 5.38 million.

Export Direction

As many as 47 countries imported textile machinery from India during 1970-71, the important ones being A. R. E. with Rs. 42.31 million, Indonesia with Rs. 2.24 million, Thailand with Rs. 1.68 million and Ceylon with Rs. 1.23 million.

Tea machinery was mainly directed to Kenya, Australia, Tanzania, Malawi and Ceylon while major purchasers of sugar mill machinery were Ceylon, Kenya, Nigeria and Uganda. Asbestos cement plant worth Rs. 1.28 million was exported to Formosa while Kuwait and Thailand too had significant share in the export of this item. Malaysia and Kenya accounted the major portion of chemical plants while A.R.E. was the major importer of Cigarette and match making machinery. The export of food processing machinery was mainly to Yugoslavia.

Kenya was the main importer of jute mill machinery with an intake worth Rs. 1.09 million. Others were Uganda, A.R.E. and Singapore. Indian oil mill machinery proved popular in Sudan, Tanzania, Indonesia, Kenya and Uganda. Formosa again was the largest purchaser of paper and pulp mill machinery followed by Kenya and Italy.

Iraq, Afganistan and Nigeria accounted for more than 50 per cent of rice and flourmill machinery exports. For reduction gears U.K. and Malaysia were the main destinations. Export of water treatment plant is mainly to Ceylon and ARE.

The manufacturing units have developed sufficient technical competence and they are now in a position to undertake supply of machinery and equipment on a turnkey basis. Besides the orders already executed and under execution a number of export orders have been secured recently by the manufacturers, some of them on turnkey basis. Orders for textile machinery and components have been received from Iraq, ARE, Burma, Ceylon, Libya, Malaysia, Ethiopia, Indonesia and Syria. Of the total orders worth Rs. 117.6 million, machinery worth Rs. 41.34 million are scheduled for supply during 1971-72. Uganda, Kuwait, and Iraq have placed orders for Sugar, cement and chemical plants at a total value of Rs. 82.32 million. The supplies during 1971-72 will be worth Rs. 73.22 million. Water treatment plant worth Rs. 3.97 million is to be supplied to Malaysia of which Rs. 2.00 million worth is scheduled for supply in the current year. ARE and Afghanistan have placed orders for concrete vibrators and stone crushers of a value of Rs. 16.61 million. The entire supplies are to be completed in the current year itself. ☐

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INDUSTRIAL MOTORS TO MALAYSIA

The stage III of the Tuanku Ja'afar Power Station of Malaysia will be equipped with industrial motors made in India. Already the boilers for this power station are being supplied by India.

The Industrial motors to be supplied are being built at the factory of Heavy Electricals (India) Limited, Bhopal. The supply includes six nos. each 320 KW and 380 KW, 3.3 KV, 1000 rpm slipring induction motrs and three nos. 112 KW, 415 volts, 1500 rpm Slipring Induction Motors. The factory has already in hand orders for the supply of motors for various Water Schemes in Malaysia.

The Bhopal factory had earlier secured a major export order for power transformers worth about Rs. 7.5 million from National Electricity Board of Malaysia. This order was claimed to be the largest of its kind ever placed on India and includes the biggest ratings of transformers, so far ordered for export. The transformers to be supplied are not only designed and manufactured at Bhopal but will also be erected and commissioned at site in Malaysia by Indian engineers.

Equipment already exported by the Bhopal factory include 11 KV Switchgears to Iraq, Large Motors and Capacitors to The Arab Republic of Egypt and large Motors to Malaysia and Kuwait. Equipment under manufacture include 11,500 and 20,000 KVA Power Transformers for Malawi, 2500, 1300 and several smaller HP Machines for Iraq and a complete nine circuit 33 KV Switchyard equipment for Malaysia. This is in addition to miscellaneous orders received from Uganda, Ceylon, Australia and other countries.

The Technical Consultancy Agreement which imposed restriction on export of products from the Bhopal factory expired in Novermber 1970 and it is now free to offer its products for export to any part of the world.

Total export of electrical power machinery from India in 1970-71 has increased to Rs. 44.68 million from Rs. 28. 65 million in 1969-70. Induction motors and parts, transformers and parts, generators and parts, rotary generators, rectifiers, choke coils etc. contributed an earning of Rs. 26.53 million while the balance of Rs. 18.15 million was made up by the export of oil circuit breakers, motor starters, motor control gears, switch fuse units, relays, switch boards and control panels, switchgears, plugs, sockets, holders etc.

Of the total export of Rs. 6.67 million worth of induction motors up to 50 HP, Federal Republic of Germany accounted for the major portion with imports amounting to Rs. 4.78 million. The other important destinations were Sudan, Singapore, A. R. E. and Republic of Vietnam, while for the other types of electric motors valued at Rs. 4.15 million, the major foreign markets were A. R. E., Singapore, Federal Republic of Germany, Ceylon, Nigeria, Thailand and U. K.

For 5 K. V. 3000 KVA transformers, the export of which stood at Rs. 7.26 million the major markets were Malaysia (Rs. 1.20 million), Ceylon (Rs. 807,000) Sierra Leone (Rs. 700,000), A. R. E. (Rs. 498,000), Ceylon (Rs. 467,000), Sudan (Rs. 455,000) and Nigeria (Rs. 436,000). For other types of transformers the important customers were U.S.S.R., Ceylon, Malaysia, Burma and Sudan.

EXPORT ORDER FOR ELECTRIFICATION OF TEXTILE COMPLEX

An export order for electrification of a textile weaving and finishing complex in Libya has been received by India on a turnkey basis. The value of the order is to exceed Rs. 7.5 million and the terms of payment are cash on delivery.

The textile plant in Libya is coming up with Indian collaboration for the General National Organisation for Industrialisation of that country.

The Indian party with whose collaboration the Libyan project is being set up is M/s. Star Trading Company Private Limited, Dhanraj Mahal, Apollo Bunder Road, Bombay-1. The recipient of the export order that has been now received for electrification of the textile complex is M/s. Crompton Greaves, 1, Forbes Street, Bombay-1.

The Indian supplier of electrification has also undertaken to import the necessary training and technical skill to the employees of the Libyan organisation. They had earlier entered into technical collaboration and consultancy agreement with the State Electrical Industries Company of Iraq.

TEXTILE PRODUCTS FOR EXPORT

The Indian exporter has made headway in the international textile markets over the years. Export of Cotton manufactures registered sizeable improvement in 1970-71 at Rs. 975 million over the export sales in the preceding year of an order of 866 million.

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PLASTICS AND LINOLEUM

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A single exporter M/s. Binny & Co. 7, Armenian Street, Madras, contributed about Rs. 30 million to the total textile export effort in 1970. Their exports were Rs. 27.6 million and Rs. 20 million respectively in 1969 and the year before. Some of the new markets where the company made a mark include Newzealand, West Germany and the U.S.S.R. Towels in a variety of designs and shades, blue drill, cotswool, tussores, casement cloth, cellular shirtings, sheets, bed-ford cord and cotton blankets are among the finished textile products that the company exports. They have effected sizeable supplies to East Africa, Ceylon and Burma also.

EXPORT GROWTH OF CHEMICAL PRODUCTS

The export value of chemical elements and compounds has improved from Rs. 44.26 million in 1969-70 to Rs. 78.39 million in 1970-71. During the two comparable years, medicinal and pharmaceutical products earned Rs. 84.65 million through overseas sales in 1970-71 as against Rs. 60 million in 1969-70.

During October 1970 – September 1971 M/s. Alkali and Chemical Corporation of India Ltd., 34, Chowringhee Road, Calcutta, engaged in the manufacture of caustic soda, chlorine, hydrochloric acid, benzene, synthetic paints and varnishes, polythene, rubber chemicals, drugs etc. had an export performance of Rs. 4.2 million registerting an increase of about 20 per cent over their previous year's export performance.

The Calcutta company has also undertaken installation of a paints factory at Jakarta (Indonesia). The factory is expected to go on stream in July 1972.

Besides providing paint-making machinery, the firm will also supply design and technical know-how for the Indonesian venture.

OVERSEAS SUPPLY OF BICYCLES AND PARTS

In 1970-71, India exported 202,904 bicycles valued at Rs. 24.39 million as against 132,911 numbers worth Rs. 15.60 million during the preceding year. The export value of cycle parts and accessories at Rs. 46.33 million in 1970-71 was also more than one and a half times of the export of these items effected in 1969-70.

Bicycle exports from India are mainly directed to Iran, Nigeria, Indonesia, Zambia, Iraq and Singapore. Even a sophisticated market like U.S.A. is one of the importers of Indian cycles. African, South East and West Asian countries as well as some European countries like West Germany, U.K., Yugoslavia etc. are the chief buyers of cycle parts and accessories from India.

Lately one single exporter M/s. T. I. cycles of India, Ambattur, Madras has bagged an export order for supply of Rs. 3.2 million worth of bicycles and parts to Indonesia.

An order from Bulgaria for 10,000 bicycles valued at Rs. 1.25 million has been received by another exporter M/s. Atlas Cycle Industries Ltd., Sonepat.

Yet another exporting unit, M/s. Bhatia Bros., Ludhiana, have exported cycle parts valued at Rs. 320,373 to Indonesia and Nigeria during July-October 1971.

FRESH EXPORT ORDERS FOR TRANSMISSION LINE TOWERS

Six overseas markets have placed export orders on India for the supply of transmission line towers and poles to the tune of Rs. 93.85 million during 1971-72 (up to September 1971). These countries are Iran, Thailand. U.S.A., Kuwait and Malawi. The Iranian orders total Rs. 40 million while Thailand placed three orders at a total value of Rs. 40.5 million. The U. S. order is worth Rs. 10 million while those from Kuwait and Malawi aggregated Rs. 3.5 million.

M/s. Kamani Engineering Corporation Limited, Kamani Chambers, Nicol Road, Bombay, have secured the bulk of these export orders. The export value of their orders is Rs. 75.4 million. Their supplies were directed to Iran, Thailand and U.S.A. During 1971-72 the supplies that the firm has committed to execute are valued at Rs. 32.5 million.

M/s. Man Structurals Private Limited, Jaipur have received an order from Iran for the supply of 400 tonnes of towers and poles worth Rs. 7.5 million. They have agreed to effect the entire supplies during 1971-72.

M/s. Electrical Manufacturing Company Limited, Calcutta secured two orders from Kuwait and Malawi at a total value of Rs. 3.5 million and they are also to execute their entire supplies to these markets during 1971-72.

Thailand is the other market that placed an order of Rs. 5.5 million worth on M/s. SAE India Private Limited, Calcutta. The importer in this case too desires that the entire supplies be made during 1971-72.

Thus of the total value of export orders received by the above firms recently, transmission line towers and poles of a value of nearly Rs. 49 million are expected to be exported in the course of the current financial year.

FURTHER ORDERS FROM MALAYSIA FOR INDIAN BOILERS

Malaysia placed two export orders on M/s. Bharat Heavy Electricals Ltd., Tiruchinapalli. One order is valued at Rs. 22.6 million while the other Rs. 100 million. The delivery schedule for the former order is 1971-72 while the latter will be supplied in due course.

CONCRETE VIBRATORS AND STONE CRUSHERS FOR EXPORT

The Arab Republic of Egypt have finalised an export deal with an Indian firm for the supply of concrete vibrators and stone crushers. The value of the export deal is Rs. 1.5 million.

The recipient of the Egyptian order M/s. Sayaji Iron and Engineering Company Private Limited, Chhani Road, Baroda-2, have earlier secured another export contract from Afghanistan at a value of Rs. 1,57,000. The firm have agreed to execute the entire supplies to both the markets during 1971-72.

EXPORT PERFORMANCE AND POTENTIAL

TARIFF PREFERENCES AMONG DEVELOPING COUNTRIES

The General Agreement on Tariffs and Trade have at the 27th Session held in November approved a Protocol for according preferential treatment among some of the developing member countries on selected products of mutual interest.

The approval of the Protocol was preceded by detailed negotiations-bilateral and multilateral-under the auspices of Trade Negotiations Committee of Developing Countries appointed by the GATT. About 37 Developing Countries agreed to participate in the negotiations of which 17 countries have taken active part. Aside from India, the negotiating countries include Arab Republic of Egypt, Brazil, Chile, Greece, Israel, Republic of Korea, Mexico, Pakistan, Peru, the Philippines, Spain, Tunisia, Turkey, Uruguay, and Yugoslavia.

After detailed bilateral negotiations, India signed agreements for tariff concessions with Brazil, Chile, Mexico, Peru, Philippines, Spain, Turkey and Tunisia. In respect of these Agreements India offered and received tariff concessions on a variety of products. Negotiations are in progress with other countries.

In consultation with domestic interests of trade and industry the Government of India identified some 72 export products for which tariff concessions are negotiated. The concessions offered by India are generally equivalent to 50 per cent of the effective MFN (Most Favoured Nation) rates of customs duty.

India's total exports during 1969-70 of the products on which the eight countries offered tariff concessions to her were about Rs. 2100 million including jute fabrics worth about Rs. 1670 million. Of these exports to developing countries were about Rs. 372 million. India had offered tariff concessions on her imports worth Rs. 251 million of which imports from developing countries worked out to Rs. 4.33 million.

The Protocol that was agreed to on November 26, 1971 provided that any preferential treatment should be designed to facilitate trade between the participating countries but not to raise barriers to the trade of other contracting parties of GATT.

EXPORT CONTRACTS IN THE PIPELINE

Export contracts worth Rs. 50 million for new products from new markets have already been secured by the clientele of the Trade Development Authority, Bank of Baroda Building, 16 Parliament Street, New Delhi-1. Export enquiries of an approximate value of Rs. 150 million are in the pipeline. The items of export are high duty alloy steel castings for German Federal Republic, silver mica capacitors for U.K; Drop forged handtools, stainless steel cutlery, industrial fasteners and sports model bicycles for U.S.A., L.P. gas cylinders for U.K. and variable capacitors tuning indicators for West Germany.

About 125 large import houses and distributors, 30 industrial buyers and four department and chain stores in U.S.A., Canada, U.K. and West Europe have been identified by the TDA for stimulating India's exports. The industrial buyers abroad include some of the renowned automobile companies, electronic company networks in U.S.A. Singapore and Hong Kong, and department stores in U.S.A. and Belgium.

Under its export strategy TDA envisages a special programme of stimulating exports of selected industrial and consumer products to U.S.A. of an annul value of Rs. 500 million within the next three years. As part of this strategy a full scale project of product adaptation has been initiated with the help of UNIDO (United Nations Industrial Development Organisation).

A bonded processing and warehousing, electronic project pioneered by the Authority at Bombay aims at export earnings of Rs. 400 million per annum within a period of three years. Envisaging the setting up of fully export oriented units in the bonded zone, the project has reached take-off stage and will be the pace setter for similar projects in other regions of the country. The zone would be operational by the end of 1972 when the first airlift of electronic equipment and components is expected.

INDO - GERMAN TECHNICAL COOPERATION

An agreement on technical cooperation between India and Federal Republic of Germany was signed recently. The agreement is an extension of the general technical cooperation agreement signed earlier and which expired on December 31, 1971.

Under the new agreement, the Federal Republic of Germany will continue to give technical assistance to India in various development sectors by providing services of experts, supplying equipment and by giving scholorships to Indian nationals. Since the first agreement was signed the Federal Republic of Germany has extended valuable technical assistance in shape of experts, equipment and training places in various technical fields. Main beneficiaries have been the Indo-German agricultural projects at Mandi, Kangra, Almora and Nilgiris. The Foremen Training Institute, Bangalore, the Central Staff Training and Research Institute, Calcutta, Indian Institute of Technology, Madras, the T.V. Stations at Delhi and the proposed Bombay, Poona T.V. Station.

The latest agreement signed provides umbrella for continuing West German Technical Aid to existing projects and similar new projects.

INDO - GREEK TRADE AGREEMENT EXTENDED

Representatives of the Greek and Indian Governments have recently exchanged letters extending the validity of the Trade Agreement between the two countries, pending finalization of a new trade agreement.

India's exports to Greece stood at Rs. 19.1 million during 1970-71 as compared to Rs. 18.9 million in the previous year. The major items of Indian exports comprise non-electrical machinery and appliances, jute manufactures, hand tools, coir yarn and manufactures and rubber manufactures.

India's imports from Greece which stood at Rs. 210,000 during 1969-70 increased to Rs. 15.9 million in the following year, the major imports being fertilizers.

EXPORT PERFORMANCE OF CASHEW KERNELS

In the first eleven months of 1971, the value of cashew kernel exports from India at Rs. 556.4 million registered improvement over Rs. 527.8 million earned in the corresponding period of 1970. In terms of quantity too export supplies rose to 55106 tonnes from 51131 tonnes. Cashew exports which slided down in the first half of 1971 looked up since August and in the recent months there has been a spurt in overseas demand for the product. The U.S. market has particularly improved its offtake to 25424 tonnes accounting for well over one half of total exports. The Soviet Union was the next best market at an import quantum of 16,600 tonnes. The other countries which increased their offtake included Canada, the U.K., Japan, Hongkong, Netherlands and West Germany.

In the same period of 1971 (January-November) the export value of cashew nut shell liquid stood at Rs. 6.73 million. Major importers were the U.K. and and Japan.

A recent development in India's cashew industry was the establishment of a distillery unit to manufacture cashew brandy. The distillery unit under the Calicut Rural Industries Project is to come up at Elathur (Kerala) to manufacture the brandy with 'Vitamin-C' from Cashew apple. The project is aided by technical know-how of the Central Food Technological Research Institute, Mysore.

Imports of raw cashew nuts from East Africa during the first eleven months of 1971 have been reduced to Rs. 264.3 million against Rs. 292.6 million in the same period of the previous year.

Unit value realisation of cashew exports has been on the uptrend. During 1970-71 the unit value was Rs. 10.35 per kg. as against Rs. 9.47 per kg. during 1969-70. In the former year the export quantum was 50284 tonnes (Rs. 521 million) while it was 60625 tonnes (Rs. 574 million) during 1969-70.

To ensure overseas confidence in their imports of cashew kernels from India, the product is subjected to strict and compulsory quality control measures before export.

EXPORT TRADE CONTROL POLICY

Certain restrictions imposed on the export of selected items with defence orientation have now been withdrawn. The restrictions were imposed on a variety of products including arms and ammunitions, construction and earth moving machinery, selected chemicals, non-ferrous metals, aircraft and aviation stores etc. With the withdrawal of restrictions on their export effective from December 24, 1971, the export of these products are now allowed freely. Details of the items on which restrictions were placed appeared in this Weekly, Vol 1 No. 29 dated December 18, 1971.

ROSES FOR EXPORT

Recently there has emerged a great awareness in India regarding the scope for export of cut flowers to Europe. Adoption of the latest scientific methods for preserving rose flowers together with modern jet aircraft transport has made it possible to despatch jet loads of roses to places like Frankfurt, Rotterdam and Paris during the last two years. The flowers continue to maintain full bloom even after reaching their destination for over two weeks. So far the export has been limited to varieties known to be popular in Europe such as 'super star', 'Happiness' and 'Queen Elizabath'. There is, however, every possibility that other outstanding varieties that have exhibition type of blooms which open slowly could also enter the export field.

In India roses grow best in winter months from December to February. This is also the time when these flowers are in great demand in European countries as no roses can be grown there during the period because of extreme cold climate. These months being the festive months in Europe, there is a boom in demand.

The overall export value of cut flowers and buds in 1970-71 totalled Rs. 137,194 which is double the export figure for 1969-70 totalling Rs. 69,864.

Considering the vast export potential of the unconventional items of roses, the Airuns Nursery of Jaipur have converted their four acre vine yard in Gandhi Nagar on Tonk Road (at Jaipur) into a rose nursery about six years back. They now grow about 600 of the world's newest and choicest varieties of roses and are planning take up the export of cut flowers to U.K. and Europe on a sizeable scale.

ECONOMIC GROWTH AND INDUSTRIAL DIVERSIFICATION

STEEL TARGET FOR 1972-73

India's steel ingot production target has been set at 7.2 million tonnes for 1972-73. On achievement of the target the steel import bill which is of the order of Rs. 2000 million during 1971-72 is expected to be cut down to Rs. 500 million or even less in the following year.

The targets for 1972-73 are following : Bhilai–2.25 million tonnes against 2 million tonnes in 1971-72; Durgapur–1 million tonnes against 0.7 million tonnes; Rourkela – 1.25 million tonnes against 0.8 million tonnes; TISCO (Tata Iron & Steel Co.) – 1.9 million tonnes against the anticipated production of 1.7 million tonnes in 1970-71; IISCO– (Indian Iron and Steel Co.) 0.8 million tonnes against 0.7 million tonnes.

In 1970-71 India imported steel worth Rs. 1282 million of which about Rs. 380 million worth was from the United States, Rs. 260 million from Japan and Rs. 120 million from West Germany. In that year the country produced only 67 per cent of available capacity i.e. 6 million tonnes of steel ingots. The Minister of Steel and Mines has expressed belief that capacity utilisation can reach a level of 85 per cent thus helping cut down steel imports to a great extent.

TWO-STAGE DRYER RISHIKESH ANTIBIOTIC PLANT

A two stage dryer at the Rishikesh Antibiotic plant of the Indian Drugs and Pharmaceutical Ltd., (IDPL) was commissioned recently. This marks a step forward in the IDPL's sustained efforts during the last few years to provide inexpensive basic drugs to consumers.

The two stage dryer will increase the rated capacity of streptomycin production from 57000 milliards per annum to 85000 milliards per annum, yielding an additional income of Rs. 8 million each year.

Built at a total cost of about Rs. 4.9 million, the two stage dryer involved 1450 cubic metres of earthwork, 715 cu.m. concrete, 510 cu.m. brick work and 148 metric tonnes of steel. It has a plinth area of 630 sq. metres and covers a floor area of 1700 sq.metres. The total production in the Antibiotics plant which was mere 41000 milliard in 1969-70 and 72000 milliards in 1970-71 is expected to rise to 120,000 milliasds in 1971-72 and 150,000 milliards per annum in the first quarter of 1972-73.

The Rishikesh plant went into production in May 1967. The range of products are potassium salt of penicillin, sodium penicillin, procaine penicillin, streptomycin sulphate, tetracyline oxytetracycline and nystatin.

The progress made by this plant is shared by IDPL's other two units viz. Synthetic Drug Plant at Hyderabad and Surgical Instruments Plant at Madras. This is evident from the total sales which jumped to Rs. 110 million in 1970-71 from Rs. 5 million in 1969-70. The IDPL authorities expect to cross Rs. 200 million in the current financial year in total sales.

In 1948, the production of pharmaceutical industry in India was of the value of Rs. 100 million. In 1968, the gross output was Rs. 2000 million; a twenty-fold increase in twenty years. Today the industry has an output of Rs. 2500 million. Products now being manufactured by the industry include autibiotics like penicllin, streptomycin, chloromphenical, tetracyclin, synthetic drugs, PAS and its salts, aspirin, sulphones and tolbutamide, synthetic hormones, vitamins, tranquilisers, drugs of vegetable origin and a host of other drugs.

DEVELOPMENT OF SERICULTURE INDUSTRY

Appreciable results have been registered in the determination of viable hybrids of silk worms for commercial rearings in the multivoltine States of Mysore and West Bengal. The Central Sericulture Research and Training Institute, Mysore undertook a crash programme of rearing the silk worms to precisely determine the most viable hybrids. The results of the programme indicated that the combination A4e x

Kalimpong A and the combination of H.S.6 x Kalimpong A, have given a remarkable yield of 46.68 kg. and 48.50 of reeling cocoons per 100 Dfls (disease free layings) respectively as against the current average of 22 to 24 kg. per 100 Dfls.

Production of mulberry raw silk in India is largely confined to the States of Mysore, West Bengal and Jammu & Kashmir. These States taken together account for over 98 per cent of the total mulberry silk production in the country. Assam accounts for the entire production of muga silk and the bulk of eri silk. Tasar silk is produced mainly in the States of Bihar, Madhya Pradesh and Orissa.

In 1970 India's total production of mulberry was of the order of 2.26 million kg. while that of tasar was 0.35 million kg. and eri 0.16 million kg. The total production of all varieties of raw silk of the country in that year stood at 2.84 million kg.

During the Fourth Plan it is envisaged to attain self-sufficiency in regard to the conntry's growing demand for raw silk through increased productivity as well as to attain an annual production of 3 million kg. of raw silk which was only 2.05 million in 1966 and 2.3 million in 1969.

A significant fall in the world supply of mulberry raw silk is noticeable on account of the unprecedented rise in the domestic consumption of raw silk in Japan and the consequent fall in its export in recent years. India offers potential for development of mulberry silk to meet the growing world demand for raw silk.

According to the estimates of the Central Silk Board, it is considered possible to organise an additional production of 800,000 kg. of high grade silk under a phased programme in the next five years of which 500,000 kg. could be released for export.

Schemes are being evolved to develop production of tasar raw silk in a big way. Silk worms are fed on oak tree leaves in the sub-Himalayan belt and the experiments proved that tasar silk produced on that basis would not be only superior in quality but very inexpensive.

India's silk product exports have been on uptrend in recent years. From Rs. 63.7 million in 1968-69 the exports rose to Rs. 174.2 million in 1969-70. The ever growing overseas demand for the Indian product has prompted the Government to evolve schemes for gradual production growth to meet the increasing export demand.

CASHEW

A REVIEW

The total area under cashew cultivation is estimated to be around 500,000 hectares. Kerala is the main cashew growing area in the country. Cashew is also cultivated in several other parts of the country.

The cashew tree is drought resistant, adaptable to different kinds of soil and thrives under a variety of climatic conditions. Maximum production is however obtained from horticultural soils, preferably deep loam with adequate moisture and drainage. Cashew tree ordinarily grows to a height of 20 to 30 feet. The cashew tree gives normal yield from the eight to tenth year onwards and continues to be productive for over 30 years.

The actual yield may vary from about 5 lbs to 50 lbs of dry cashew nuts per tree. Individual tree yields have been as high as 150 lbs.

The average annual yield of cashew nuts is around 150,000 to 160,000 tonnes. In 1970-71 the production is estimated at 156,000 tonnes.

There are about 170 cashew nut processing factories in India, majority of them in the State of Kerala. The raw cashew nuts are processed in these factories. Processing consists of roasting, shelling, peeling and grading. Mechanisation of processing is now receiving increasing attention.

The Cashew kernel inside the nut, has a delicious taste, pleasing flavour and high nutritive value. It compares favourably with almonds and other nut foods in nutritive value. Cashew kernels contain about 20 per cent proteins, 21 per cent carbohydrates and appreciable quantities of calcium, phosphorous, fat, iron and Vitamins A and B. Compared to other edible nuts, cashews contain a lower percentage of carbohydrates, fats and alkalinity. Cashew kernels are consumed raw or fried, salted or sugared. It is considered as an ideal snack item in many countries. It is also widely used as a flavouring medium in the confectionery and baking industries.

Indigenous production of raw cashew nuts is inadequate to meet the needs of the processing units and hence raw nuts are imported. During 1970-71 nearly 169,400 tonnes of raw cahsew nuts valued at Rs. 294 million were imported mainly from East African countries. From September 1970 import of cashew nuts has been canalised through the Cashew Corporation of India. Development programmes for increase in indigenous production of cashew nuts has been undertaken.

The Cashewnut yields a number of by-products of value in industrial use and also in export trade. The Cashewnut shell liquid is the most important among these. The liquid is extracted from the pericarp of the seed, while roasting the nuts. It is a dark reddish brown viscose liquid, easily soluble in most of the organic solvents. The Cashewnut shell liquid has many industrial uses because of the fact that by polymerisation or other means, it could be converted into solid or semi-solid synthetic resins suitable as starting materials in the paint and plastic industries.

The liquid is directly used as a water proofing agent and preservative in the painting of boats, fishing nets and light wood work. Besides these direct uses, it serves as an important raw material in the manufacture of brake-lining, oil and acid proof cold setting cements, industrial flooring tiles, adhesive ingredient, pigments for gums, paints, varnishes, water-proofing paper and cardboard finishing re-agents.

The Cashew apple, yields a juice which easily ferments and can be made use of for manufacturing liquors.

A distisllery unit to manufacture brandy with Vitamin C from cashew apple is to be established at Elathur in Kerala. The technical know-how for this project will be given by the Central Food and Technological Research Institute, Mysore.

Quality being the foremost determinat of export potential, qualified entomologists regularly inspect cashew factories and advise the managements on the preventive and remedial measures necessary for insect eradication. Under the quality control scheme packers are to ensure that the processing, peeling and grading premises as well as processing equipment and accessories are maintained in sanitary and hygienic conditions. The packers grade cashew kernels in accordance with the quality standards laid down. The Export Inspection Council of India has an inspectorate for carrying out inspection of the quality and standards of the kernels processed in the various factories and packed at the premises of packers.

India is the biggest exporter of cashew kernels in the world. During 1970-71, 50280 tonnes of cashew kernels of a value of Rs. 520.7 million were exported. This consisted of 38,551 tonnes at Rs. 425.5 million of cashew kernel whole, and 11729 tonnes at Rs. 95.14 million of cashew kernel broken.

Over the years the direction of cashew exports has diversified. During the 1950s nearly 80 to 85 per cent of the trade was only with U. S. A. New markets have since been developed. For instance during 1970-71 more than 50 per cent of the exports was directed to countries other than U. S. A.

In 1970-71 U.S.A's intake of cashew kernels amounted to Rs. 245.75 million followed by U.S.S.R. with purchases amounting to Rs. 146.83 million. The other major importers and their shares were : Canada Rs. 25.52 million; German Democratic Republic Rs. 23.90 million; Australia Rs. 12.17 million; U.K. Rs. 10.72 million; Japan Rs. 10.22 million; Hong Kong Rs. 8.27 million; Netherlands 6.20 million; Yugoslavia Rs. 5.33 million; Czechoslovakia Rs. 4.29 million; Singapore Rs. 3.67 million; Federal Republic of Germany Rs. 2.97 million; France Rs. 2.30 million; Hungary Rs. 1.90 million; Poland Rs. 1.85 million; Lebanon Rs. 1.42 million; Iran Rs. 1.25 million; Kuwait Rs. 1.07 million and New Zealand Rs. 0.91 million.

Besides cashew kernels, India exports cashew shell oil in considerable quantity. The 1970-71 export was of the order of 6925 tonnes valued at Rs. 7.86 million. U.K. was the major market with an intakeof 3083 tonnes at Rs. 3.45 million followed by Japan with 2005 tonnes at Rs. 2.47 million and U.S.A. with 1282 tonnes at Rs. 1.13 million.

INDIA'S NATIONAL INCOME IMPROVES

India's Net National Product is estimated at Rs. 187,550 million during 1970-71. The per capita income in the same year was Rs. 347.

National Income estimates for 1970-71 at constant prices (Base 1960-61) registered a 4.7 per cent increase over the previous year. The annual rate of growth was in fact higher in 1969-70 at 5.3 per cent; in 1968-69 the growth rate was only 2.2 per cent.

The rate of growth in 1970-71 compared with the previous year would have been higher but for the shortfall in the level of production in the mining and quarrying sectors.

The agricultural sectors registered a growth of 5.2 per cent in 1970-71 compared to 5.1 per cent in 1969-70.

COMPULSORY QUALITY CONTROL FOR EXPORT

Compulsory quality control and preshipment schemes have been recently extended to bright steel bars and coriander.

The bright steel bars will be subject to compulsory preshipment inspection scheme with effect from January 1,1972.

The export of coriander whole and powder has already came under the purview of compulsory quality control and pre-shipment schemes effective from September 1,1971.

The annual export of bright steel bars is of the order of Rs. 16 million and the principal buyers for these bars are Iran, Philippines, Singapore, Thailand, A.R.E,.U.K. and U.S.A.

In 1970-71, export of coriander seed amounted to about Rs. 1 million, U.K., Singapore, South Yemen Republic, and Muscat were the principal importing countries.

The compulsory quality control and pre-shipment schemes already cover a number of other items under the category of engineering products, minerals and ores, chemicals and allied products such as rubber and plastic products, refractories, ceramics, organic and inorganic chemicals, rubber beltings, inorganic pigments, pesticides and allied products; Jute and coir products, food and agricultural products, and miscellaneous items like leather footwear, human hair etc.

(Details regarding items covered by the schemes appeared earlier at p. 12-13 of issue No. 21 Vol. I)

TEA IN CONSUMER PACKETS

Total exports of tea from India in 1970-71 amounted to about 200 million kg. valued at Rs. 1482 million. Of the overall export, tea in consumer packets was of the order of Rs. 8.43 million kg. valued at Rs. 63 million. Tea in packets is mainly directed to Gulf countries, Bahrein Islands, Sudan, Iran, A.R.E., U.S.A. etc.

With a view to promote export of tea in consumer packets in both existing and potential markets, the Government of India have set up a "Tea Trading Corporation of India" in Calcutta.

While the new Corporation will attempt to market tea mainly in packs in India and abroad, it will engage in the trading and marketing of tea in other forms also, such as blended, instant and green tea and thus help in diversification of the export product to earn more foreign exchange.

The Corporation will undertake marketing directly or through other agencies. Regular research is to be conducted for product development and market exploration. In course of time, the Corporation will establish its blending and packaging units in India and abroad.

The Corporation will initially market Indian tea in consumer packs in certain selected countries in West Asia as well as in some other countries. It will also market certain specialised brands of tea such as Nilgiris, Assam and Darjeeling in the sophisticated markets to cater to the needs of select clientele.

PROGRESS OF AGRICULTURAL PRODUCTION

SOME FACTS ON AGRICULTURAL IMPROVEMENT

Production of foodgrains in 1970-71 was 107.82 million against 99.50 million tonnes in the preceding year. The target for 1971-72 has been placed at 112 million tonnes while at the end of Fourth Plan (1973-74) the production target is 129 million tonnes, The output of oilseeds gradually improved from 7.73 million tonnes in 1969-70 to 9.12 million tonnes in the following year. The Fourth Plan target is 10.5 million tonnes. Sugarcane production was 13.2 million tonnes in 1970-71 and its Fourth Plan target has been placed at 15 million tonnes. In terms of bales cotton output was 5.56 million in 1970-71 as against 5.23 million in the preceding year and the target for 1973-74 is 8 million tonnes. Jute production which has fallen in 1970-71 to 4.9 million bales from 5.65 million bales in the previous year is expected to recover to 6.2 million bales in 1971-72 and its target for the last year of the Fourth Plan is 7.4 million bales.

The high-yielding varieties programme has already started paying dividends. In 1969-70 the programme covered 11.41 million hectares and 14.61 million hectares in the following year while the Fourth Plan target is to bring 25 million hectares under the programme. Additional multiple cropping also registered improvement from 1.52 million hectares in 1969-70 to 1.59 million hectares in 1970-71 and the target for additional cropping by the Fourth Plan end is 9 million hectares. Additional minor irrigation programmes have also looked up by bringing 1.21 million hectares, under its purview in 1969-70 and 1.47 million hectares in 1970-71; the Fourth Plan target therefore is 7.2 million hectares. Addiiional soil conservation programmes which covered 1.05 million hectares in 1969-70 covervcd 1.25 million hectares in the following year; the Fourth Plan target for additional soil conservation is 5.65 million hectares per year.

Consumption of nitrogenous fertilisers (in terms of N) has also gradually progressed–1.36 million tonnes in 1969-70 and 1.49 million tonnes in 1970-71. The anticipated achievement of fertilisers consumption in 1971-72 is 1.78 million tonnes while the Fourth Plan target is 3.20 million tonnes. Fertilizer consumption in terms of P_2O_5 (phosphatic) was 0.42 million tonnes in 1969-70 and 0.46 million tonnes in the following year. While the anticipated achivement in 1971-72 is 0.64 million tonnes the Fourth Plan target is 1.4 million tonnes.

Plant protection programmes too made considerable advance. The programmes brought under its purview 34.61 million hectares in 1969-70 while the coverage improved further to 43.20 million hectares in the following year. By 1973-74 plant protection is targetted to cover 80 million hectares. The gross cumulative potential of irrigation facilities-major and minor-improved from 19.15 million hectares in 1969-70 to 19.75 million tonnes in the following year. The Fourth Plan target for the irrigation potential has been placed at 23.3 million hactares. Of the irrigation potential available, the gross cumulative utilisation improved from 17.14 million hectares in 1969-70 to 17.68 million hectares in 1970-71 and the Fourth Plan target therefor is 20.9 million hectares. Installed power capacity has risen to 16.49 million kilowatts in 1970-71 from 15.44 million kilowatts in 1969-70 and is expected to reach a level of 23.2 million kilowatts by the end of the Fourth Plan. The number of energised pumpsets installed throughout the country rose to 1.63 million numbers in 1970-71 from 1.35 million numbers in the previous year and is anticipated to grow up to 2.34 million numbers by the Fourth Plan end.

The net value added in terms of value at 1968-69 prices has improved in the sectors of agriculture, forestry and logging and fishing. In the agricultural sector, the net value added was 138,590 million in 1968-69, Rs. 145,850 million in 1969-70 and 153,720 million in 1970-71. The annual rate of percentage growth of the net value added was thus 5.2 per cent in 1969-70 and 5.3 per cent in 1970-71. Likewise the net value added in the forestry and logging sectors was Rs. 4700 million in 1968-69, Rs. 4800 million and Rs. 4970 million in the following two years. As for fishing, the net value was Rs. 1730 million in 1968-69, Rs. 1750 million and Rs. 1800 million in the following two years according to the latest estimates of the Central Statistical Organisation.

INDIA STOPS IMPORT OF WHEAT AND RICE

India has stopped wheat imports from the United States under PL 480 and decided to stop with immediate effect import of rice for domestic requirements.

This decision would not affect import of rice from Burma, Thailand and the Arab Republic of Egypt with whom India has already entered into bilateral agreements.

Import of wheat under PL 480 has been stopped in pursurance of the Government of India's decision not to import after December 31, 1971. In fact, the U.S. Government authorised India's purchase of nearly 400,000 tonnes of wheat under PL 480 a few weeks ago. But the Government of India decided not to purchase wheat because of adequate production within the country.

The country's rice position at present is "very good", according to the Minister of State for agriculture. The country has a carry over of 400,000 tonnes of rice in November 1970. The stock increased to 900,000 tonnes in November 1971. The rice stock position is expected to improve further.

At present India has a stock of 8 million tonnes of foodgrains including wheat and rice.

TRENDS IN AGRICULTURAL PRODUCTION

(In thousand tonnes)

Crop	AREA ('000' HECTARES)		YIELD	
CEREALS	**1970-71**	**1969-70**	**1970-71**	**1969-70**
Rice	37,432	37,680	42,448	40,430
Wheat	17,892	16,626	23,247	20,093
Jowar	17,435	18,605	8,188	9,721
Bajra	12,907	12,493	8,000	5,327
Maize	5,839	5,862	7,413	5,674
Barley	2,597	2,765	2,865	2,716
Ragi	2,530	2,783	2,201	2,117
PULSES				
Gram	7,810	7,752	5,247	5,546
Tur (arhar)	2,648	2,699	1,841	1,842
OILSEEDS				
Groundnut	7,293	7,125	6,065	5,130
Sesamum	1,572	2,307	N.A.	433
Rapeseed and mustard	1,219	3,104	N.A	1,507
Linseed	1,082	1,740	N.A.	415
Castor seed	378	394	110	116
FIBRES				
Cotton*	7,293	7,712	N.A.	5,233
Jute*	750	768	4,905	5,655
Mesta*	327	322	1,230	1,130
Sann-hemp	175	165	70	67
OTHERS				
Potato	511	524	4,093	4,726
Sugarcane	2,553	2,718	N.A.	13,438
Ginger (dry)	N.A.	20	19	18
Tobacco	432	434	N.A.	338
Black pepper	120	120	26	25
Chillies (dry)	N.A.	663	390	399

All figures for 1970-71 are estimates.

*Bales (1 Bale=180 kg.); N.A. : Not available.

Source : Reserve Bank of India Bulletin, October, 1971.

WHEAT PRODUCTION TOUCHES ALL TIME HIGH

The production of wheat in India has nearly increased four times from 6.4 million tonnes, two decades back, to 23.2 million tonnes in 1970-71.

This all time high record has been possible as both the area under wheat cultivation and the average yield of wheat per hectare has nearly doubled during the last two decades. The area under cultivation has increased from 9.7 million hectares to 18 million hectares. Similarly the average yield per hectare has gone up from 663 kg. to 1229 kg. during the last two decades.

Ludhiana district in Punjab (India) holds a world record in the year—65 quintals of wheat per hectare as compared to next best average yield of 28 quintals in Mexico.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

RESEARCH IN CERAMICS AND GLASS INDUSTRY

The Central Glass and Ceramic Research Institute, Calcutta, has developed a process for the manufacture of heat-insulating bricks from mica waste. The process is in commercial operation, and bricks worth Rs. 14 million have so far been supplied to steel plants and other consumers-

The Institute has also developed a process for making refractories containing 70 to 95 per cent alumina. The Institute's refractories have been found comparable in quality to imported ones.

Glass with a very high lead content capable of absorbing atomic radiation, is required for atomic reactors. The institute has developed and supplied such special glass worth Rs. 500,000 to the Bhabha Atomic Research Centre.

The Institute has also developed a special type of glass required for atomic reactors. This new type of glass has a very high load content capable of absorbing atomic radiation. The Institute has supplied such special glass worth Rs. 0.5 million to the Bhabha Atomic Research Centre at Bombay.

Import substitution in the glass and ceramics industry has already saved the country Rs. 2403 million per year in foreign exchange and will soon save another Rs. 10 million per year.

PLANTS FOR CANCER CURE

The Indian Drug Research Institute at Lucknow has succeeded in isolating chemicals from three Indian medicinal plants. These chemicals have shown promising results in animal tests in the treatment of "Walker tumour", also known as "Carcieno sarcoma".

The Institute at Lucknow, has been engaged in screening Indian medicinal plants for their efficacy in the treatment of cancer.

Scientists at the Institute had originally 1500 plants and carried out 1240 tests. Fiftyfour plants were found to have anti-cancerous action.

A recent breakthrough in research made at the Institute was the finding that the yellow colouring material in haldi (curumin) has anti-inflamatory action. The chemical is cheaper than other available drugs and could even be exported.

Toxity of another chemical from a medicinal plant, asclepias currassavica, which is found to be a good cardiotonic agent, is being studied at the Institute. Animal tests have already been completed.

MANUFACTURE OF ATRAZINE

National Chemical Laboratory, Poona, has successfully developed a process for the manufacture of atrazine used as a herbicide in maize and sugarcane crops. Atrazine is prepared by the interaction of cyanuric chloride with ethylamine and isopropylamine. The work in the laboratory has been conducted at I kg. batch scale and a few kilogrames of the product have been prepared. The product compares favourably with the imported material.

The raw materials required for the manufacture of atrazine are cyanuric chloride, ethylamine and isopropylamine. Out of these Ethylamine is being manufactured in the country though some quantity is imported also. Isopropylamine will be procured through import for the time being. Other raw materials are indigenously available. Wooden vats, stirrers, filtration and drying units, pulverizer and blender are the major items of plant and equipment required for the manufacture of this material. All of these are indigenously available. The technology for atrazine is mostly similar to that of simazine and a manufacturer producing simazine can take up the manufacture of atrazine with profit.

The total capital outlay for a plant capable of producing 50 tonnes per annum of atrazine or 100 tonnes per aunum of 50 per cent wettable atrazine is estimated to cost approximately Rs. 1.6 million - Rs. 300,000 as fixed capital on plant, equipment and building and Rs. 1.3 million for working capital.

TERT—BUTYLCATECHOL

A process for the manufacture of Tert-butylcatechol starting from t-butyl alchohol and catechol has been developed successfully at National Chemical Laboratory, Poona.

The product prepared at NCL has been tested and was found satisfactory.

The raw materials are tert-butly alcohol, catechol, benzene and sodium carbonate. Of these, catechol and tert-butyl alcohol will be procured through import. There is, however, possibility in the near future of the establishment of catechol industry in the country based on the crude catechols available from M/s. Neyveli Lignite Corporation Limited, Neyveli. The main items of plant and machinery like reactor made of stainless steel, flame proof motor, condensor, receivers, packed column, extract storage vessel, high vaccum distillation assembly are indigenously available.

For plant with a capacity of 25 tonnes per annum, the total investment is expected to be about half a million rupees.

Tert-Butylcatechol is used as a stabiliser or polymerization inhibitor in the synthetic rubber industry. At present there is no indigenous production of this material and the entire requirements are met through imports. The estimated demand by 1974 is expected to be of 24 tonnes per annum.

PHOTO COPYING MACHINE WITH INDIGENOUS KNOW-HOW

Developed by the National Physical Laboratory, New Delhi, photo copying machines are under manufacture by M/s. Advani-Oerlikon Private Limited, 6-A Ring Road, Lajpat Nagar, New Delhi 24. The machine is built almost entirely from the indigenous material and know-how. With a brand name of 'PANAPRINT' the machine is available for inspection demonstration and immediate delivery to intending purchasers. The machine uses dry process (no wet chemicals involved) and can take copies on ordinary paper and copy documents printed on both sides.

PLASTICS AND LINOLEUM

The Plastics Industry in India started with the production of processed goods from imported plastics raw materials marking use of imported machines and moulds. With the increase in the consumption of raw materials, attention was given to the production of basic plastics raw materials and thereafter to the basic chemical raw materials.

Raw Material

The first basic material, phenol-formaldehyde resin, was produced in India in 1946. As demand grew for polystyrene injection mouldings and polyethylene layflat film, investment in polymer manufacture became imperative, and the country's first polystyrene unit, with a capacity of 2,700 tonnes per annum using imported styrene nonomer, was commissioned in 1957. Styrene monomer itself was made about three years later, using fermentation alcohol and coaltar benzene at feedstock.

Two units for low-density polyethylene, with capacities of 3600 and 2250 tonnes, also based on ethylene obtained from alcohol, started production in 1958 and 1960 respectively.

Polyvinyl chloride (PVC) was made for the first time in 1961 with the commissioning of a 3500 tonne capacity plant, employing carbide-based acetylene.

Since then all these plants have expanded their capacities and new units have been set up.

The present installed capacity for plastic material is: phenol formaldehyde moulding powder 2600 tonnes; urea farmaldehyde moulding powder 2300 tonnes; polystyrene 17,500 tonnes; low density polyethylene 19,100 tonnes; high density polyethylene 20,000 tonnes; PVC resins 42,800 tonnes and urea formaldehyde synthetic resins 5500 tonnes.

The estimated requirement of plastics raw materials is placed at 224,000 tonnes by 1974. This would obviously involve doubling of the present capacity by 1973-74. A planned investment of Rs. 3,500 million is expected to be made by the end of the Fourth Plan (1973-74) in plastics and its chemical feedstock. This investment would also include expenditure for the Gujarat Petrochemicals complex.

The production of these plastic raw materials in 1970 amounted to nearly 95,000 tonnes as against 84,000 tonnes produced in 1969 and 12,800 tonnes in 1961. Of this phenol formaldehyde moulding powder accounted for 3,246 tonnes in 1970 and 2643 tonnes in 1969, urea formaldehyde moulding powder 1680 tonnes and 1540 tonnes, polystyrene 9238 tonnes and 9385 tonnes low density polyethylene 23,315 tonnes and 18,710 tonnes, high density polyethylene 18,346 tonnes and 17,388 tonnes and polyvinyl (chloride resin) 38,678 tonnes and 34,388 tonnes.

To start with, production of polyethylene and polystryrene were based on indigenous alcohol and benzene and PVC on calcium carbide acetylene. There is also one unit making PVC from alcohol ethylene. Now the production of these plastics is being switched over to petro chemical feed stocks. There are already two units manufacturing ethylene and benzene by cracking naptha. An aromatic project has also been established for producing benezene, toluene and xylene.

Development has also been effected with regard to cellulose acetate plastics. The moulding powder is currently produced by compounding imported flakes with indigenous plasticiser colours and stabilizers. Production of flakes from indigenous cotton linters has also been developed.

Simultaneous with this development, the ancilliary items required for plastics compounding have also been developed. These are the phthalate plasticizer, epoxy (secondary) plasticizers as well as lead based stabilizers.

The installed capacity for plasticizers is 13,200 tonnes and actual production in 1970 stood at 10,700 tonnes.

End-Uses

Plastics find use in a variety of industries both heavy and light. Their properties of resistance and strength make them useful in the manufacture of safety glass, laminated glass, pulleys, seat belts and the like. In the automobile and aircraft industries plastics find specific utilisation because of strength and electrical resistance. In the electrical industries moulded and laminated organic plastics prove extremly useful as solid insulating material. Plastics find extensive use in the construction industry as surface coatings, clectrical conduits, decorative laminates, hand rods, floor tiles, floor toppings, roof-light sheets, glazing and partition panels, showers, sink wastes, water taps and so on. Plastics as packing and fibre material is another line of growing importance. The chemical processing industries are utilising plastics in the form of tubing and piping, tanks, pumps and valves because of their resistance to corrosure gases, liquids and solids. Plastic household items are also having an increasing demand.

Conversion Industry

During 1970 over 400 million numbers of plastic moulded goods were turned out by the organised sector. Nearly 2900 tonnes of polyethylene film pipes and layflat tubing, 7350 tonnes of PVC unsupported sheets, 4250 tonnes of phenolic laminates, 10,200 kilometres of leather cloth, and 2.4 million sq.metres of photographic paper were also turned out by the Indian industry.

In the plastics conversion industry the small scale sector units in the country have a notable contribution. It is estimated that there are about 1800 small scale units with a processing capacity of about 30,000 tonnes. Some of the important items manufactured by this sector are buckets, tubs, trays, shopping bags, bottles, foot mats, rain coats, containers, spectacle frames, lamp shades, radio cabinets, electric fan components, condensors, PVC tubing and automobile accessories. Since the plastics industry at the conversion stage offers large scope for development in the small scale sector, a wide range of items have been reserved for exclusive production in this sector.

Alongside the development of the plastic industry, manufacture of equipment and machinery such as injection moulding, blow moulding and extrusion machines, moulds and dies have been established and the production is on the increase.

Linoleum

Many types of attractive linoleum floor coverings especially plains, inlaids and printed are being manufactured in India. About 1030 kilometres of linoleum was produced in 1970.

Linoleum makes an ideal floor covering for all types of floors—concrete, wood or metal. With a wide range of shades and patterns, it provides scope for the creation of many well composed decorative schemes to harmonise with individual tastes. It is resilient and has high resistance to fire and possesses sound and heat insulating properties.

Export Performance

Exports of plastic products during 1970-71 reached the level of Rs. 87.50 million as against Rs. 87.32 million during 1969-70. During the year, the items that have registered improvement were PVC sheeting, imitation jewellery, moulded goods, polylined jute goods and raw materials.

The categorywise break up of plastic exports during the year would reveal that plastic raw materials earned foreign exchange worth Rs. 25.23 million, polylined jute goods, Rs. 16.50 million, moulded goods Rs. 8 million PVC leather cloth Rs. 7.6 million, PVC sheeting Rs. 5.4 million; linoleum Rs. 4.4 million; fountain pens Rs. 3.5 million; plastic electric accessories Rs. 3.1 million; plastic imitation jewellery Rs. 3.5 million; laminates Rs. 2.2 million; bangles Rs. 2 million; PVC fabricated goods Rs. 1.3 million and extruded goods Rs. 1.2 million. ☐

Attention

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EXPORT ORDERS FOR RAILWAY EQUIPMENT

The value of orders received for the export of railway equipment and track materials during 1971-72 (upto September 1971) totalled Rs. 596 million.

Among the countries that placed the orders are Ghana, Iran, Iraq, Hungary, Kenya, Poland, Sudan, Taiwan and Yugoslavia for railway equipment and Burma and Iran for railway track materials.

The largest order has been placed by Yugoslavia for 3600 railway wagons at a value of Rs. 374.48 million. The recipient of the order M/s. State Trading Corporation of India Limited, Chandralok, 36, Janpath, New Delhi-1, have agreed to supply 415 wagons during 1971-72 itself at a value of Rs. 43 million.

Hungary finalised a deal with M/s. Textile Machinery Corporation Ltd., Belgharia, Calcutta-56, for the supply of 1000 wagons valued at Rs. 58.5 million of which 775 wagons are scheduled to be delivered to that country during 1971-72 for a value of Rs. 46.5 million.

Next in importance is the export commitment made by M/s. K. T. Steel Industries Private Ltd., P. O. Box 6517, Bombay-26, to supply 120 wagons (Rs. 9.6 million) to Sudan as also 492 wagons to Iran of a value of Rs. 37.95 million. The entire supplies to both these countries are to be effected during 1971-72.

M/s. Integral Coach Factory, Perambur, Madras received an order from Taiwan for export of 113 train passenger cars valued at Rs. 38 million and the delivery schedule is to be completed during 1971-72 itself.

Poland desired to purchase from India 500 covered wagons for Rs. 27 million from M/s. Jessop & Co. Ltd., Calcutta to deliver the entire supplies during 1971-72.

Among other export orders received are from Ghana, for 150 wagons at Rs. 6.7 million by M/s. Braithwaite & Co. India Ltd., Clive Road, Calcutta; Sudan for 43 wagons at a value of Rs. 2.5 million by M/s. Mckenzie's Ltd., Acharya Donde Marg, Sewri, Bombay; Kenya for the supply of 45 Cattle wagons by M/s. Hindustan General Industries, Qutab Road, Delhi, at a value of Rs. 3 million; East Africa for export of 100 wagons by M/s. Burn & Co., 12, Mission Row, Calcutta, at a value of Rs. 9.3 million; and Iraq for 45 hopper wagons of a value of Rs. 2.86 million by M/s. Central India Machinery Manufacturing Company Limited, Bharatpur. In all these cases the delivery schedules are to be completed during 1971-72, excepting in case of Iraq, for which the delivery is to be completed by November 1972.

Iran placed two orders on M/s. Richardson & Cruddas Ltd., Byculla Ironworks Bombay and M/s. Ramchander Heeralal, Calcutta for the supply of railway track materials. The Bombay firm is to effect supplies worth Rs. 13 million and the Calcutta firm Rs. 6.9 million. Another order was received for the supply of railway track materials from Burma by M/s. Tata Exports Limited, Bombay Honse, Bruce Street, Bombay. The supplies are 28000 tons of fish plates and 1.12 million numbers of anchors. Of the value of these supplies at Rs. 5.74 million, Rs. 2.24 million worth are to be effected during 1971-72.

The importance of the Indian market as a competent supplier of railway equipment has been happily recognised by the world markets. Among others, the Indian industry is capable of exporting railway rolling stock such as covered wagons, cattle wagons, hopper wagons, tank wagons, petrol wagons, luxury coaches, 8-wheel bogies and under-frames and a variety of railway track material.

In 1970 the actual production of railway wagons in India uas of the order of 12,500 numbers in terms of four-wheelers. The existing capacity in that year was 32,820 numbers.

FABRICATED STEEL STRUCTURALS AND NEW EXPORT DEALS

Indian fabricated steel structurals have been active in the export business. In 1970-71 their export value was up by Rs. 7 million at Rs. 26.5 million compared to the previous year. Rolling shutters, steel doors and windows, steel shutters, angles, fabricated steel structurals, pressed steel tanks, galvanised tension bars, collapsible gates, steel barriage gates, steel bridge components, are among the structural products that have been exported.

In 1971-72 more export orders have been received from international markets. Up to the period September 1971 at least five countries have placed sizeable orders on some of the Indian firms engaged in the production and export of fabricated structurals. The total value of these orders is Rs. 32.9 million. The Arab Republic of Egypt placed an order for the supply of 3630 tonnes of structurals at a value of Rs. 13 million. The order was received by M/s. Acrew India Ltd., Bombay. M/s. Braithwaite, Burn & Jessop, Calcutta have agreed to effect Rs. 9 million worth of supplies to New Zealand in 1971-72 itself. Thailand placed an order on M/s. New Standard Engineering Co. Ltd., Bombay for a value of Rs. 7 million, the entire supplies being shceduled to be delivered during 1971-72. M/s. Kaveri Structurals, Madras finalised a deal with Iran for the supply of 14 furnace structures valued at Rs. 2 million. Ceylon is yet another country that sought import from India for a quantity of 2698 tonnes of pen stock pipes of a value of Rs. 7.7 million from M/s. Giovanola Binny Ltd., Cochin.

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Despite the mounting internal demand and pressure on domestic sales the above firms have committed to fulfil their export sales to the tune of Rs. 24.84 million in 1971-72 within the total value of Rs. 32.88 million.

The export of fabricated steel structurals in 1970-71 were mainly effected to Iran, ARE, Thailand, Iraq, Kuwait, Burma, Canada, Singapore and Saudi Arabia. U.S.A. was the principal purchaser of galvanised tension bars in that year. While Kuwait imported the best part of steel trunk exports, Iraq was the major market for steel tanks, Jordan for steel slotted angles and ARE for rolling shutters.

EXPORT PROSPECTS OF WOOLLEN MANUFACTURES

The export value of woollen manufactures touched an all time high in 1970-71 at Rs. 322.26 million. In 1969-70 the value stood at Rs. 264.76 million.

A surprising variety of woollen manufactures has already captured international demand including fabrics, garments, blankets, hosiery, shawls, woollen blended readymade garments, mufflers, scarves, and carpets, besides raw and knitting wool.

Among the several individual export orders received, M/s. Raymond Woollen Mills Ltd., P. O. Jekegram, Thana (Maharashtra), have already supplied overseas, a wide range of woollen manufactures particularly of wool/worsted suitings, polyester/wool suitings, trousers and jackets, woollen blankets and worsted knitting yarn. Their export value in 1970-71 was Rs. 11.1 million. They expect to reach a target of Rs. 15 million in 1971-72. Among the markets that their exports have been directed include United Kingdom, Canada, Sweden, Denmark, Norway, Singapore, United States and Jamaica.

Wool worsted and blended fabrics were prominent in the exports of M/s. British India Corportion Ltd., Post Box No. 5, Kanpur, whose export value in 1970-71 stood at Rs. 3.4 million. M/s. Dinesh Mills Ltd. Padra Road, Baroda have successfully exported terene/wool suitings, blankets, yarn, endless woven felts and industrial fabrics to Hungary, U.S.S.R., Singapore, Czechoslovakia and African countries to the tune of Rs. 2.75 million in the same year. M/s. Shree Digvijaya Woollen Mills Ltd., Jamnagar-3 (Gujarat) exported mainly to East Europe nearly Rs. 1.95 million worth of fancy suitings, terene wool, wool and wool mixed shawls, blankets and yarns in 1970-71.

Mixed terywool fabrics were exported to Kenya by M/s. Radha Silk Mills 82, Marine Drive, Bombay at about a value of Rs. 2.6 million in 1970-71. They hope to effect overseas supplies to the tune of Rs. 4.5 million in 1970-71.

In the wool and wool blended readymade garments group M/s. Milton's Private Ltd. N.M. Joshi Marg. Bombay, supplied nearly Rs. 10 million worth of terywool shirts and trousers to the Soviet Union in 1970-71 while M/s. Wings Wear Private Ltd., 1/4, West Patel Nagar, New Delhi-8, exported Rs. 8.5 million worth of terywool shirts to the same country in that year. The Soviet Union also purchased garments made from wool/wool blended fabrics, as also terywool shirts from M/s. Excel Wear, 111/113, Dr. Narriman Road, Worli, Bombay-25, to the tune of Rs. 3.5 million in 1970-71.

Another firm M/s. Shree Krishna Woollen Mills Pvt. Ltd., 166, Dr. D.N. Road, Bombay-1, supplied woollen blankets and woollen worsted yarn to East Africa, Sudan and ARE of a value of about Rs. 0.7 million while M/s. Simplex Woollen Mills, Dr. D. N. Road, Bombay-1, supplied shoddy woollen blankets and tweeds, dyed shoddy woollen blankets and mufflers, blazers and machine cloths to West Asia, Malawi, Zambia, Kenya and Fiji at a value of Rs. 0.6 million in 1970-71. These firms have plans to substantially improve their overseas supplies in 1971-72.

LATHES TO GERMAN FEDERAL REPUBLIC

As a result of India's participation in the International Machine Tools Exhibition (1970) at Hanover (West Germany), India received an export order for the supply of 100 lathes. The value of the export deal is about DM 34500.

The German party, M/s. Weiler K. G. had concluded the export deal after being satisfied with the sample supplies of precision tool room lathes.

The Indian party, M/s. National Small Industries Corporation Ltd., Industrial Estate, Okhla, New Delhi-20, have already despatched the first consignment of the supplies and expect that the German importer will place further orders.

The Indian industry already made a mark in the international markets as a competent supplier of lathes and other varieties of machine tools. In 1970-71 the country's export value of metal working lathes was of the order of Rs. 8.6 million. The export variety of the metal working lathes, included turrets, centre lathes and multi-tool production lathes.

India's total exports of machine tools in that year was of the order of Rs. 28.40 million.

STATE TRADING CORPORATION

EXPORTS ON UPTREND

The latest estimate of the State Trading Corporation of India reveals that their export value during 1971-72 will be Rs. 920 million as against Rs. 741 million during 1970-71. The Corporation has already effected overseas supplies of a value of Rs. 571 million during April-December 1971.

The import value of STC will have increased from Rs. 1540 million in 1970-71 to Rs. 2350 million (estimated) in 1971-72.

The total turnover of STC (exports, imports and domestic sales) is also expected to improve substantially from Rs. 2338 million in 1970-71 to an estimated Rs. 3380 million in 1971-72. Interestingly, the total turnover in the first three quarters of 1971-72 (April-December 1971) was already as much as Rs. 2164 million.

EXPORT PERFORMANCE AND POTENTIAL

INDO-U. K. TRADE AGREEMENT TO CONTINUE

The Government of U. K. have withdrawn their notice to terminate the 1939 Trade Agreement with India. The British Government had earlier decided to retain India's export quota of textiles to that country.

Keeping in view the larger consideration of Indo-U. K. relationship, the Government of India have decided to grant waiver to the U. K. Government for imposition of tariff on textiles. This decision was communicated to the British Government by the Indian Minister of Foreign Trade.

The Indian Government had earlier declined to allow a waiver to the U. K. Government when it was decided by the U. K. Government to not only impose a 15 per cent tariff on textile imports but to discontinue quotas. But with the U. K. Government's agreeing to retain the quotas as well as to continue the 1939 Trade Agreement, the Government of India have now decided to allow the waiver to impose the additional tariff.

In his communication to the British Trade Minister, India's Minister of Foreign Trade reiterated his country's opposition to the 15 per cent tariff and hoped that Britain would find it possible to include textiles in its offer of the Generalised Scheme of Preferences.

With the British decision to continue the export quotas of textile products, Indian exports have an assured market for textiles in the British market. The annual export value of textiles from India to the U. K. is of the order of Rs. 200 million. The Government of India are also happy over the British Government's decision to allow duty free imports of cotton and silk handlooms.

CHEMICALS AND ALLIED PRODUCTS

EXPORT GROWTH

The export performance of chemicals and allied products registered an all time high at Rs. 405 million in 1970-71 as against Rs. 338 million in 1969-70. The uptrend is more or less maintained in 1971-72 too - Rs. 209 million during April-October, 1971.

The major products that were responsible for the substantial increase in export in 1970-71 included auto tyres and tubes, plywood and allied products, bamboo pulp, cigarette, tissue paper, synthetic enamel and insulating varnish, pigments, calcined magnesite, calcined kyanite, barytes, cement, hoses and beltings, scientific glassware, clinical thermometers, carbon papers, stencils and other stationery articles, detonators and safety fuses and matches.

As to the direction of export, the Asian and African countries continue to be the largest buyers accounting for 53.3 per cent of the overall exports in 1970-71. Next in order of importance are the East European countries including the U. S. S. R. with a share of about 20 per cent. The other major buyers are U. K. (7.4 per cent), U. S. A. and Canada (5 per cent) and the E. C. M. countries (10.7 per cent). Major increases in export during 1970-71 have been in respect of Africa (from Rs. 48 million to Rs. 64 million, Middle East and West Asian countries (from 38 million in 1969-70 to Rs. 55 million) and East European countries (from Rs. 62 million to Rs. 80 million). Exports, however, recorded slight decline in case of the U. K. and Japan.

With the Generalised Scheme of Preferences (G. S. P.) having already been ratified by the ECM countries and Japan, several chemical products of export interest to India will prove to be more competitive in these markets. Among others, the items that will be benefited are auto tyres and tubes, rubber and canvas footwear, paints and pigmemts, glass and glassware, plywood, paper products, matches etc.

EXPORT PERFORMANCE OF ENGINEERING PRODUCTS

Export value of engineering products during April-November 1971 stood at Rs. 823 million as against Rs. 664 million in the comparable period of 1970-71.

The stepped-up target for exports in the line has been set at Rs. 175 million for 1971-72. During the preceding year exports reached the level of Rs. 1166 million.

Excepting for May and November 1971 engineering exports scored noticeable gains in all other months during the period under review. This uptrend helped maintain an overall lead of 24 per cent in value realization.

UNIDO TEAM FOR INDIAN GARMENTS

'India has a tremendous potential to have a viable export programme to the United States, especially in home furnishing and ready-to-wear garments', stated a member of the UNIDO (United Nations Industrial Development Organisation) Team which visited India recently at the instance of the Trade Development Authority. The Authority is presently working out a strategy to accelerate export of home furnishings and readymade garments to the United States and Europe. The visiting member stated "we have located a company that makes cotton knits, an item in great demand in America. It is ideally suited for our markets in the way in which it is styled. We hope we can give orders in thousands of dozens".

EXPORT OF SILK AND RAYON TEXTILES IMPROVES

In the first seven months of 1971-72 (April-October, 1971) silk and rayon textiles netted an export value of Rs. 62.4 million which was an 18 per cent improvement over the offtake in the corresponding period of the preceding year at Rs. 52.8 million. The fabric variety led the list of exports followed by rayon tyre yarn, garments and made-ups, and hosiery and knitwear.

In 1970-71, exports of silk and rayon fabrics amounted to Rs. 52.4 million as against Rs. 35.8 million in the preceding year. Yarn, both rayon type or otherwise fetched Rs. 34.4 million against Rs. 6.6 million in 1969-70. The export value of garments and made-ups was Rs. 8.9 million against Rs. 13.3 million while that of hosiery and knitwear was Rs. 100,000 against nil in the comparable years.

EXPORT PERFORMANCE OF PLASTICS AND LINOLEUMS

Export of plastics and linoleums during the first seven months of 1971-72 (April to October 1971) stood at Rs. 33.6 million. Of this the export of PVC leather cloth contributed Rs. 5.98 million, moulded goods Rs. 3.95 million, poly-lined jute goods Rs. 3.63 million, linoleum Rs. 2.85 million, plastic bangles Rs. 2.68 million, PVC sheeting Rs. 2.55 million, fountain pens Rs. 2.33 million, plastic imitation jewellery Rs. 2 million, spectacle frames Rs. 1.99 million, plastic raw materials Rs. 1.62 million, plastic electrical accessories Rs. 1.58 million, PVC fabricated goods Rs. 0.8 million and extruded goods Rs. 0.8 million.

The export value of plastics and linoleums during April-October 1970 was of the order of Rs. 41.11 million. Exports in the entire period of 1970-71 were Rs. 87.51 million. The export target for 1971-72 is Rs. 100 million. In addition to the items mentioned above, other varieties of exports in the line are laminates, pipes and specials and HDPE sacks/fabrics.

WHEAT FLOUR PRODUCTS FOR EXPORT

India is to export maida and suji, wheat flour products, for the first time to the West Asian markets from July this year, stated the Chairman of the Food Corporation of India.

The country has on hand a buffer stock of 5 million tonnes of wheat and with expected procurement of six to seven million tonnes of this foodgrain in the current year it would be possible to have 12 to 13 million tonnes of wheat in the godowns.

Earlier the decision to discontinue import of foodgrains under PL 480 has been announced by Government.

BAILADILA IRON ORE PROJECT AND EXPORT TRADE

The Bailadila Iron Ore Project has earned a total of about Rs. 182 million of foreign exchange during April-December, 1971. the Project had so far exported worth Rs. 770 million.

The total production of lump ore at the project during the first 9 months of 1971-72 was of the order of Rs. 2.62 million tonnes and the actual shipment for this period was 2.52 million tonnes according to the authorities of the Project.

In 1970-71, India's total exports of iron ore and concentrates stood at Rs. 1172.78 million as against Rs. 946.16 million in the preceding year.

TEXTILES AND HANDICRAFTS TO EEC

The Common Market Commission announced authorisation of limited imports of certain silk and cotton fabrics from India on a duty-free basis during 1972, it is learnt. A 'nil duty' tariff quota worth 2 million units of account has been extended to silk or cotton fabrics woven on handlooms in India. The country is to guarantee the origin and nature of the goods by means of certificate of manufacture and seals. The 'nil duty' tariff quota is to be shared among the member countries of the E.E.C. (European Economic Commission) on a specified basis.

Another 'nil duty' tariff quota has also been announced to the tune of 5 million units of account for handicrafts. The beneficiary countries include: India, Thailand, Indonesia, the Philippines, Iran and Ceylon. The handicraft products concerned include leather goods, felt carpets and rugs, articles worked in semi-precious stones, household and other articles in copper, metal statuettes, articles made of mother of pearl, ivory, bone and horn, dolls in national costumes and wooden toys. The handicrafts quota too has been allocated among the member countries of the E.E.C. on a specified basis.

MORE JOINT VENTURES ABROAD

Two more joint collaboration projects abroad with Indian assistance have been recently approved. The areas of manufacture with India collaboration relate to fractionating of palm oil and steel re-rolling. The former project is to come up in Malaysia and the latter in Nigeria.

The fractionating plant for palm oil in Malaysia will be a joint venture between M/s. Chemical Construction Company, New Delhi, and M/s. Barkat Stores Private Limited, Penang. The steel re-rolling mill in Nigeria is to come up as a joint project with the assistance of M/s. Bhagwan Industries, Lucknow. The project has been approved only in principle subject to the condition that the Indian party should work out full detials of the scheme.

The details of the other projects coming up abroad with the assistance of Indian industry have appeared on page 1-2 of vol. I. Issue 28 of this Weekly.

INDIA'S PARTICIPATION AT PLOVDIV FAIR

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India's participation at the Plovdiv International Fair in Bulgaria during September 1971 has proved to be of importance to India's export trade. A wide range of engineering and consumer products was displayed in the Indian Pavilion which attracted attention of not only representatives of the Bulgarian Buying Organisation viz. M/s. Raznoiznos but also received wide coverage in the local publicity media such as newspapers, television and radio.

In the Textile Section of the Indian Pavilion put up by the Cotton Textiles Export Promotion Council, six firms had participated. The representatives of M/s. Raznoiznos, who visited the textile section, indicated good scope for India's export of cambrics, poplins, bedsheets, towels and lace materials. The Council received an enquiry for supply of bleached and dyed cambrics worth U.S. $ 20 million.

A Bulgarian Trade Delegation including the representatives of the Bulgarian Purchase Organisation visited India in November, 1971, and it is reported that the Delegation booked considerable business for shipment upto March 1972 which is to exceed Rs. 4 million. The purchase deals finalised by the visiting Bulgarian Delegation included some of the qualities displayed in the Textile Section of the Indian Pavilion at the Plovdiv Fair.

ECONOMIC DEVELOPMENT AND INDUSTRIAL DIVERSIFICATION

DRIVE TO MAXIMISE INDUSTRIAL PRODUCTION

In a major drive to maximise industrial production, the Government of India have decided to permit 54 key industries to produce more than their licensed capacities. The existing units in these industries can now raise their production to double their licensed capacity without a fresh licence. So far, the industries had been permitted to exceed their licensed capacity only by 25 per cent more. Another facility offered to the key industries pertains to permitting them to run on three shift basis wherever they have been specifically licensed earlier, for operations on a single or a double shift basis. The new concessions will not however apply automatically to larger industrial houses and foreign majority firms. A task force has been set up by Government to quickly process applications from such firms for expansion in the listed industries while keeping in mind considerations of monopoly. The concessions would also not apply to the 128 and odd products which are now reserved for the small scale sector.

The list of the 54 key industries includes motor cycles; bicycles; mopeds; agricultural tractors; agricultural machinery and implements; pumps and compressors; fertilisers; pesticides; basic metals - iron and steel, copper, aluminium, zinc and lead; industrial and mining machinery; iron and steel castings, forgings, pipes and structures; internal combustion engines; machine tools and accessories; workshop machinery and equipment other than machine tools; small tools including cutting tools; power tools and other workshop tools; coated and bonded abrasives and polishing wheels; industrial furnaces; welding electrodes; ball and roller bearings; transformers, switchgears, motors, generators, power capacitors, rectifiers, relays and electric stampings; electrical cables and wires; storage batteries and dry batteries; electronic components; construction and earth-moving equipment; cranes and hoist blocks; industrial fasteners; wire ropes; scientific and industrial instruments; cement; organic and inorganic heavy chemicals; fine chemicals; pulp, paper and newsprint; synthetic rubber; tyres and tubes; industrial explosives; industrial gases; drugs; medical and surgical equipment and appliances; electro-medical and X-ray equipment; refractories, fire bricks and insulators; commercial vehicles including jeeps and three wheelers; automobile ancillaries; trawlers, dredgers and fishing boats; optical and laboratory glass and glass wool; jute textiles; canned and preserved fish; sanitary cans; paints, varnishes and enamels; man-made fibres; telecommunication equipment; wagons; industrial refrigeration equipment; sugar and cotton textiles.

Allocation of additional scarce raw materials for extra production in these industries would be subject to the conditions for the allocation of material for the existing capacity. No extra import facilities would be granted towards the expansion of the existing capacity in these industries, it is learnt.

BICYCLE INDUSTRY

A PROFILE

During the last three decades, the Indian bicycle industry has emerged as one of the important light engineering industries of the country.

The number of manufacturers in the line went on increasing from year to year. To-day there are 21 large factories and 150 small manufacturing and assembly plants turning out a large variety of cycles. In addition about 1000 units of all descriptions manufacture parts and accessories. About 5,000 dealers all over the country handle the products of these units and there are about 10,000 repair establishments. The production figures of complete bicycles over the years are noteworthy. In 1947, it was 37,000 bicycles; in 1951: 1,54,000 bicycles; in 1956; 667,000 bicycles, in 1961; 1,041,000 and in 1968 it was about 1.7 million which rose to about 1.95 million numbers in 1969. The production figure for 1970 stands at 2.07 million registering a cent per cent increase over the 1961 figure. For the Fourth Plan, a target of 3 million bicycles for the organised sector is envisaged.

As for the progress of spares and accessories, the value of spares and accessories which was hardly Rs. 10 million in 1951 rose to Rs. 99.20 million in 1969 and Rs. 102.43 million in 1970.

The industry suffered a set back during 1969 due to shortage of indigenous raw materials. There was particular shortage of mild steel bars and bicycle spoke-wire, BP sheets and cold rolled mild steel strips for manufacture of bicycle chains, rims, and mudguards. Consequently, adhoc imports were allowed to help the industry to maintain the tempo in production for both home and export consumption.

The growth of the industry has been balanced quantitatively and qualitatively. All the important bicycle units have installed modern machines/equipment and automatic plants for certain operations. Every component is subjected to rigorous tests before it leaves the assembly line and conforms to most exacting standards laid down by the Indian Standards Institution. Still greater precaution and vigilance is exercised at all stages of production in regard to bicycles intended for overseas markets under the slogan "Export only the best". The compulsory pre-shipment inspection scheme introduced by the Government is also intended to ensure that no sub-standard products leave the shores.

The industry has proved to be a good foreign exchange earner in recent years, though it was only in 1958 that the industry entered the export field. In 1958, about 5,500 bicycles worth Rs.0.80 million were exported. By 1969-70 as many as 132,911 complete bicycles worth Rs. 15.60 million were exported. During 1970-71 the export of complete bicycles increased to 202,904 numbers valued at Rs. 24.39 million. Other types of cycles worth Rs. 87,700 were also exported during the year. Export of cycle parts and accessories amounted to Rs. 46.33 million in 1970-71 as against Rs. 30.05 million in 1969-70.

Nearly a quarter of the total exports of bicycles in 1970-71 was to Iran whose intake amounts to Rs. 6.8 million. The second major market was Nigeria which imports totalling Rs. 4.82 million. The other importing countries were Indonesia Rs. 3.35 million, Zambia Rs. 2.1 million, USA Rs. 1.62 million, Iraq Rs. 1.03 million and Singapore Rs. 1 million.

In the group of bicycle parts, export of chains fetched Rs. 2.1 million. UK, Yugoslavia, Denmark, Iran, Uganda, Nigeria, Belgium, USA, Japan and West Germany were the main importing countries. Bicycle free wheels valued at Rs. 3.16 million were also exported to countries like Iran, Indonesia, Yugoslavia, Malaysia, Iraq, Thailand, Malawi and Singapore.

Bicycle hubs, rims and saddles together secured a foreign exchange earning of Rs. 7 million, while spokes and other bicycle parts brought in Rs. 32.7 million. African, South East and West Asian countries were the major buyers of these items.

Besides export of bicycles and parts, India is also effectively exporting manufacturing technology and know-how to regions like Africa and Malaysia. M/s. Murugappa and Sons, Madras, have entered into collaboration with a Malaysian firm for manufacture of cycles and industrial chains. Approval in principle has also been granted to M/s. Industrial Construction Co. Calcutta for collaboration with a Nigerian firm for manufacture of cycle tyres and tubes in that country.

HANDICRAFTS INDUSTRY
A REVIEW

Providing employment opportunities to more than 1.3 million artisans spread over different parts of the country, the handicrafts sector produces well over Rs. 3650 million worth of a wide variety.

Notwithstanding the progress made in several sectors of industrial production and technology, India still retains its hereditary crafts. Age-old skillls are pursued to suit dictates of modernity and simultaneously with a crop of industrial and agro-based products, the country offers for export a wide range of handicrafts. That substantial amount of foreign exchange is earned by these crafts every year is an evidence of growing world interest for them.

Handicrafs include a large number of crafts, the major among them being precious and semi-precious stones, jewellery of precious metals, imitation jewellery, hand-made woollen carpets, druggets, numdas, art metal wares, artistic timber carvings including screens and other pieces of furniture, hand printed textiles, shawls and scarves, pottery, leather, bamboo and cane wares and stone wares including marble and alabaster. Each craft is backed by centuries of experience and skill.

Carpets and Floor Coverings

India produces a variety of carpets and druggets, each centre producing distinctively individualistic pattern of its own. Carpets of Kashmir have patterns and designs of leaf and flower that are to be found no where in the world. Carpets of Agra offer enormous weight and solidity while carpets of Mirzapur and Bhadohi (Uttar Pradesh) have rare beatuy of design and variety in quality and price. India also produces inexpensive druggets and other floor coverings called namdahs, gubbas and durries. These can also be used as picnic rugs and diwan covers.

Handlooms

The home-woven textiles of India are noted for their delicate weaves, precise details, unique designing and a dazzling range of colours. The sarees from Kanchipuram (Tamil Nadu), Srinagar (Kashmir), Gujarat and West Bengal; the brocades of Banaras (Uttar Pradesh), the stoles from Hyderabad (Andhra Pradesh) or zari shawls from Surat (Gujarat) are some of the most popular names in India's handloom trade.

Jewellery

Throughout India, ornaments of different patterns are made. The styles employed in making them are simple yet intricate. Different parts of Rajasthan make a variety of lac bangles studded with coloured glass mirrors and beads. Orissa makes an increasing type of jewellery viz. filigree. The emphasis of this work is on the extreme delicateness of drawn-out wires which are framed into required patterns. Costume jewellery is also produced in endless variety. For this, a variety of stones like tiger stone, coral, torquoise, and jade are employed.

Art Metals

The metal artisans of India produce an amazing range of articles in bronzes, copper, brass and bell metal from the gaint classical temple icons to the ornamental cufflinks. The enamelled wares of Jaipur (Rajasthan) are examples of painstaking craftsmanship. Moradabad (Uttar Pradesh) produces flower vases, brass plates and fruit bowls with floral designs. From Faridabad (Haryana) come giant-size punch bowls and brass table tops with bold and original designs. Metal plates from Tanjore (Tamil Nadu) have silver encrusted mythological figures on engraved copper background.

Wood Carvings

Today, many parts of India produce different types of objects in wood. They are both ornamental and utilitarian. Among them, the delicately-carved figures of gods and goddesses from elaborately carved sandal wood caskets often depicting a scene from Ramayana or Mahabharata from Mysore; fine traceries minutely carved in walnut from Kashmir; table tops, chairs, trays, plates, and walking sticks from Maharashtra are worthy of mention. Of particular interest is the 'Nirmal' work of Hyderabad. The surface of the wood is lacquered and forms the background. On it are effected fine and delicate designs in subtle colours, more often the recreations of miniatures and paintings of Kangra and Ajanta Schools.

Toys

Equally important are the hand-made toys of India. With brilliant hues and dresses, they are made of wood, clay or cloth. These are mostly representations of life and designed to readily arouse infant fancies. The wooden toys of Banaras (Uttar Pradesh) the clay toys of Kondapalli (Andhra Pradesh), the cloth dolls of Poona (Maharashtra) and Bihar and stuffed animal toys of Madhya Pradesh, the terracotta horse figures of West Bengal and pithy dolls of Krishan Nagar are among a few of the available range.

Mats and Basketry

For warm comfort, pleasing looks, and decorative qualily, Indian mats are well-known. Originally, a native creation and an indispensable utility item of village India, the hand-woven mats have lately caught on world imagination and demand.

Basket work is another simple and attractive craft of India. In Assam basket work is done by tribals. In Orissa, colourful barkets are woven with geometrical patterns. The rattan work of Malabar, reed work of Tamil Nadu, willow work of Kashmir, cane work of Assam and bamboo work of West Bengal, Bihar and Orissa offer endless choice of craftsmanship.

Keeping in view the impact of changes in the social and economic pattern on this traditional industry, the Government of India set up All India Handicrafts Board as early as 1952 to undertake developmental measures to provide India's craftsman a legitimate place in the national economy. As a result of the efforts of the Board, State Governments and other Handicrafts Organisations, not only the traditional skills have been preserved but have been developed further in tune with modern requirements.

The Handicrafts Board have set up 4 regional design centres at Bangalore, Bombay, Calcutta and Delhi and a Central Handicrafts Development Centre at Bangalore. The Regional Centres conduct analysis of the past history and restyle design patterns with demands of the day. The Bangalore Centre evolves designs mainly in wood, stone, ivory, lacquerware, metal, pottery and costume jewellery. The Bombay Centre deals with metal, wood, terracota, papier-mache, batik printing and costume jewellery. Lately the introduction of X-mas decorative soft dolls, bedecked with folksy feeling have set a new trend. Vases and lampshades in metal, trivets, screens, smoking pipes, wooden toys, papier mache, plaster statuettes, terracota figures and utilitarian items stand as examples of the centre. The Calcutta Centre works after the revival of modern handicrafts including tribal metal castings, folk silver jewellery, carpets and mats, pottery and solapith. The Delhi Design Centre has developed a variety of designs in wood, metal, stone, jewellery, and embroidery. Most of the designs developed here keep in view the tastes of Japanese and EEC customers.

During 1970-71, the four design centres produced nearly 1100 new designs.

Research is carried out in improved techniques of production at the Central Handicrafts Development Centre at Bangalore. These new techniques along with new tools are disseminated among the craftsmen.

In the recent past, there has been a large scale revival of interest in Indian handicrafts. As a result of the efforts made both at home and abroad, the sector has shown a great degree of buoyancy in exports in the past few years. The annual average exports of handicrafts during the First Five Year Plan (1951-56) was Rs. 70.4 million, during the Second Plan (1956-61), it was Rs. 93 million, and during the Third Plan (1961-66) Rs. 236 million. Exports in 1969-70 touched Rs. 833 million.

Indian handicrafts are directed to almost all the countries of the world. The major markets are, however, the developed countries like U.S.A., U.K., Federal Republic of Germany, Canada, Australia, Netherlands, Belgium, Switzerland and Japan.

PLANS TO IMPROVE NYLON YARN CAPACITY

The licensed capacity of nylon yarn has been doubled from the present 14,000 tonnes to over 27,000 tonnes per annum. Additionally, the capacity of two of the existing units is being stepped up by nearly 100 per cent.

The additional capacity that has been approved will be spread over eleven States in the country, namely, Tamil Nadu, Mysore, Andhra Pradesh, Gujarat Haryana, Punjab, Orissa, Kerala, Madhya Pradesh, Bihar and Assam. The two units whose expansion is allowed are M/s. Nirlon Synthetic Fibres and Chemicals Ltd., M. G. Road, Bombay and Garware Nylon, Chowpatty Chambers, Sandhurst Bridge, Bombay. In the case of former, the capacity is being raised from 2500 tonnes per annum to 4200 tonnes while that of the latter from 2000 to 4200 tonnes. Each of these units is expected to produce 360 tonnes of polyester filament yarn within a year once the additional capacity comes into operation.

The Fourth Plan demand estimates of nylon yarn were placed at 22,500 tonnes per annum. Subsequent studies reveal that at least a total capacity of 42,000 tonnes should be established to meet the emerging demand therefor in the country.

Of the total existing capacity of 14,000 tonnes, production of nylon yarn in 1970 was 9273 tonnes. In the first six months of 1971, it was estimated at 4850 tonnes.

ALUMINIUM PLANT AT KORBA

An Aluminium Project with an installed capacity of 10000 tonnes of aluminium metal per annum and a rolling mill for production of flat products and other fabrication facilities is being set up at Korba in Madhya Pradesh.

The cost of the Korba smelter and fabrications is estimated at about Rs. 1520 million. This includes a ceiling provision of Rs. 70 million for township and foreign exchange content of Rs. 235 million.

The project is being set up by Bharat Aluminium Co. Ltd (BALCO) in collaboration with Soviet Union. However, the bulk of the plant and equipment will be procured from indigenous sources based on the design and technical know–how available in the country. Even non-standard and specialised equipment costing about Rs. 300 million will be manufactured indigenously with Soviet assistance.

Bharat Aluminium Co. Ltd. (BALCO) is taking up the aluminium project at Korba alongwith one at Koyna (Maharashtra) having a metal capacity of 50,000 tonnes. By bringing these units into production, BALCO would help the country to achieve not only self-sufficiency, but also move towards establishing a substantial foreign market.

The Korba plant is expected to be commissioned in phases starting from end of 1974. The Koyna unit is also expected to go into production by that year.

In 1970-71, India produced 1,65,000 tonnes of aluminium. The output during 1971-72 is estimated at about 200,000 tonnes.

PILOT PROJECTS TO DEVELOP NEW PRODUCTS

The National Research Development Corporation of India (NRDC) New Delhi, proposes to set up 19 pilot projects costing about Rs. 42.50 million to try and prove the economic feasibility of new processes developed in Indian laboratories.

Among these projects are S.A.N. Plastics, Potassium chloride from distillery wastes, pilot plant for artificial fibres, development of high pressure technology and manufacture of synthtic diamonds.

In 1970-71, the Corporation issued 90 licences. Of these the important ones relate to the electrostatic photo-copying machine developed by the National Physical Laboratory; silicon carbide developed by the Regional Research Laboratory, Hyderabad; nicotine sulphate from tobacco waste developed by the National Chemical Laboratory, Poona; bromine from sea bitterns developed by the Central Salt & Marine Chemicals Research Institute, brick extrusion machine developed by the Central Building Research Institute and the close type nickel cadmium cell developed by the Central Electro-Chemical Research Institute, Karaikudi.

The processes which went into production during the year include Instol, Potassium Scheonite from Sea Bitterns, Orthotolyl Biguinide, Dioctyl Phthalate, Tin Oxide Resistors, Syntans, Vigilance Control, Pentaerythritol, Medical Instruments, Caffeine from Tea Waste.

The value of production based on the licences issued by NRDC increased to Rs. 60 million per annum in 1970-71 as against Rs. 48 million per annum in 1969-70, resulting in saving of foreign exchange equivalent to Rs. 45 million per annum.

The NRDC has also taken in hand development projects, in collaboration with industry and also independently, for manufacture of aleuritic acid from lac and citric acid from sugar and molasses. The latter project is particularly significant and when established on a commercial scale would save foreign exchange of the order of Rs. 5 million per year.

The NRDC has forged links with the CSIR laboratories, Indian Council of Agricultural Research, Defence Research and Development Organisation, Atomic Energy Commission etc with a view to coordinate the research activities in different research institutions.

RECORD HEAVY EQUIPMENT LIFTED AT BOKARO

A noticeable stepforward in the construction of Bokaro steel plant was taken recently when the slabbing mill stand weighing 206 tonnes, the heaviest single piece of equipment, was lifted with four tonnes capacity cranes installed on its foundation. This is claimed to be a unique instance of any steel plant in India when such heavy equipment was lifted.

The erection of this giant sized equipment posed a problem to the engineers as the overhead cranes with which this should have been lifted were yet to be received from the supplies. A lot of improvisations was devised for loading and unloading and final positioning of the massive stand on its foundation base. With this, the pace is now set for accelerating the equipment erection in the rolling mills of the steel plants.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

LOCATION OF DEEP CRACKS IN LARGE STRUCTURES

The Central Water and Power Research Station, Poona, has developed and successfully tried a quicker method for estimating the depth and extent of deep cracks in large structures like concrete dams. The tests were conducted at Koyna and Bhandardara (Maharashtra), Konar (Bihar), Idikki (Kerala) dams. The results obtained have been corroborated by visual inspection, chemical tracer and underwater T. V. camera studies.

The method of testing consists in the use of a mechanical hammer and low frequency wave probe. The basic principle of the method involves the use of reflected wave pattern from the plane or planes of cracks and assessing the depth of the cracks from the travel time of the reflected phase or phase. The newly developed method is an improvement over the other methods as it is quicker in locating the crack zones and enables detection of crack zones undetected by the other methods.

ACTIVE CARBONS FROM COCONUT SHELLS

The Regional Research Laboratory at Hyderabad has developed technology to manufacture active carbons from coconut shells, rice husk, bagasse and other agricultural wastes.

Active carbons have several industrial uses. They are mainly utilised for decolouralisation as purifying and refining agents for the vegetable and mineral pills, pharmaceuticals and for absorption of gases.

The Hyderabad Laboratory has done pioneering work in the manufacture of active carbons from vegetable products.

The technology for the manufacture of active carbons with cocount shells and rice husk has vast potential in the southern parts of India where large quantities of shells and rice husk go waste.

One such plant was proposed to be set up in Andhra Pradesh by a private industrialist in Krishna district where the Government was contemplating a coconut industrial complex.

PREPARATION OF TOLUALDEHYDES

The Central Electro-Chemical Research Institute, Karaikudi, has developed a process for the manufacture of Tolualdehydes on the oxidation of Ortho, Meta, Para Xylene and Xylenes.

Tolualdehyde is used in peppermint beverage and perfumery industry. This is also used as an intermediate for the synthesis of pharmaçeuticals and drugs.

There is hardly any production of Tolualdehyde in the country at present. With the process now developed by the Institute at Karaikudi, it will not be necessary to resort to import to meet the demand of perfumery industry for Tolualdehyde.

Sulphuric acid (commercial), Mangnous sulphate, Xylene and Sodium bisulphate are the main the raw materials needed for the process. All are available indigenously.

LIGHT ELECTRICAL INDUSTRIES

Manufacture of light electrical goods like electric lamps, dry and storage batteries, electric metres and instruments, wiring accessories and fittings, refrigerators, air conditioners and domestic appliances began in the country in the early thirties. The electric fans industry, however, started still earlier.

The increased generation and consumption of electricity resulted in growing demand for light electrlcial products and production registered an upward trend year after year.

Electric Fans

With 1.6 million numbers in 1970 India is one of the foremost producers of electric fans in the world. The installed capacity is of the order of 1.8 million numbers per annum.

The industry has a wide range of products and includes general utility fans. celling fans, table and cabin fans, pedestal fans, railway carriage fans and air circulators. Apart from products which are used for domestic purposes, the industry also produces industrial fans, exhaust fans and blowers.

Increase in fan production has not only brought down imports from about Rs. 2 million in 1956 to a negligible level now but has encouraged rising exports to several countries. The increased domestic demand and export requirements have prompted Government to allow substantial expansion in indigenous capacity. There are about 25 units in the large scale sector and about 40 unit in the small scale sector engaged in the production of electric fans and parts.

Recent import substitution in the electric fans industry is in the replacement of capper rotors by aluminium rotors. The blades which were made previously of steel sheets are now made with aluminium.

Fans are manufactured as per the specifications of Indian Standards Institution for air delivery, service value, current consumption, high voltage test etc.

Electric fans for exports are covered by the compulsory Quality Control and Preshipment Inspection.

Exports of electric fans and parts were of the order of Rs. 14.38 million in 1970-71. Ceiling fans were the foremost category exported at a value of Rs. 12.58 million. Pedestal fans, rail carriage fans and table fans are among the other types available for export.

Iraq was the leading buyer of complete electric fans at a value of Rs. 8 million in 1970-71. Sudan and Kuwait were the markets next in importance at Rs 1.3 million and Rs. 1.18 million respectively. Nigeria, Iran, Singapore, A. R. E., Malaysia and Australia were among the other importers.

The advance of fan engineering field is such that the industry is now in a position to export fan making technology. There are already two joint ventures, one in Malaysia and the other in Singapore, for manufacture of electrie fans and sewing machines.

Recently a technical collaboration and consultancy agreement has been secured by an Indian firm for the setting up of a ceiling fan factory in Iraq. The contract secured in the face of stiff international competition is expected to bring in a foreign exchang earning of Rs. 25 million.

Electric Lamp Industry

Over a period of two decades, the electric lamp industry in India has not only improved the quantum of production but has diversified its product range. In 1948 mainly GLS type of lamps were produced at a level of 10 million numbers. In 1970 the production of GLS and similar lamps was 163.7 million numbers, constituting over 83 per cent of the total electric lamp production. In the same year output of fluorescent tubes was 10.48 million numbers and that of miniature lamps 40.6 million numbers.

Presently there are 11 units in the organised sector to manufacture GLS lamps out of which 8 units manufacture fluorescent tubes too. There are proposals for additional capacity.

Complete substitution has been introduced in the nanufacture of lamp caps by using aluminium in place f brass. The existing manufacturers as well as new units re all now manufacturing lamp caps with aluminium nly.

No foreign collaboration is considered necessary or GLS lamps or fluorescent tubes. Only in the case f special varieties of GLS lamps and other varieties ike mercury vapour lams, halogen lamps etc. foreign ollaboration is permitted in a limited way. Production of halogen lamps, ultra violet lamps etc. is likely o come up shortly.

Although some of the principal raw materials for lectric lamps production such as filament, lead in wire and lead glass tubes are presently allowed to be imported, domestic capacity for these raw materials is being gradually developed.

In 1970-71, the export value of electric fluorescent tubes and fixtures as also electric lamps and bulbs was of the order of over Rs. 6.25 million. The export of the former variety, namely, fluorescent tubes and fixtures was Rs. 5.85 million. Netherlands, A.R.E., Australia, Ceylon, German Federal Republic, Kuwait Singapore, Thailand and Italy were major importers.

Iraq, was the principal market for electric bulbs in the same year followed by ARE, Hongkong, Iran and Ceylon.

Dry and Storage Batteries

With a current installed capacity of 469 million numbers of dry batteries, the 6 units engaged in the line produced 481 million pieces in 1970 which was a marked improvement over the production of 214 million numbers a decade ago.

The industry is producing batteries for flash lights, telecommunication, signalling and general purposes and also radio batteries.

The demand for dry batteries has been placed at 1150 million numbers by the end of Fourth Plan (1973-74). To increase production capacity letters of intent have already been issued to some units.

Of the raw materials required by the industry, mercurio chloride, outer jackets, miscellaneous chemicals etc. are available from indigenous sources while the requirement of zinc, acetylene black and carbon rods are met through imports.

Starting with the manufacture of automotiv batteries, the storage battery industry has increased and diversified its production. Following automotive batteries, manufacture of batteries of heavy duty type for train lighting, air conditioning and telephone industries as also the defence requirements like light weight wireless batteries, and military transport batteries commenced. Later, batteries for mechanical handling equipment, emergency power and those required for popular types of air planes were developed.

The installed capacity for storage batteries is a little over 1 million numbers and actual production in 1970 stood at 1.14 million numbers. The estimated demand by 1973-74 is placed at 2.8 million numbers. As in the case of dry batteries, expansion of capacity for storage batteries has also been taken up.

The types of batteries manufactured in India for various applications are mainly the lead-acid type. The casting for the batteries, hard rubber or plastic cell container is manufactured in India from indigenous raw materials. The wooden separators in batteries have also been replaced by synthetic separators made out of microporous rubber and plastic.

Nearly Rs. 6.13 million more was earned in 1970-71 as compared to 1969-70 through the overseas supplies of batteries and accumulators and parts. The export turnover in 1970-71 was of the order of Rs. 22.23 million while in 1969-70 exports amounted to Rs. 16.10 million.

In this export earning, flash light batteries accounted for Rs. 5.2 million while other types of dry cell primary batteries secured Rs. 6.72 million. Sudan purchased Rs. 1.81 million worth of flash light batteries while South Yemen Republic accounted for Rs.1 million. The intake of West Germany stood at nearly Rs. 742,000. For other primary dry cell batteries Sudan was again the major destination. Her import of this item amounted to Rs. 1.78 million. Nepal the next largest purchasing country imported batteries worth Rs. 1.15 million. Wet Cell primary batteries were mainly exported to German Democratic Republic and Iraq. The total exports of this type of batteries amounted to Rs. 1.06 million. Primary battery parts, with an export value of Rs. 1.13 million were mainly directed to Thailand and Ceylon.

Export value of accumulators including lead acid type was of the order of Rs. 7.72 million. Supplies to USSR amounted to Rs. 4.77 million and to Iraq Rs. 1.06 million.

Air conditioners and Refrigerators

The technology and science of refrigeration have made advance in India during the last two decades. Initially the industry was engaged primarily in the assembly of imported parts and components.

Six units are currently engaged in the manufacture of domestic refrigerators with an annual capacity of about 108,300 numbers per annum. In 1970, actual production of domestic refrigerators was 65,400 numbers.

Establishment of 5 new units for manufacture of domestic refrigerators is under consideration. Besides expansion of the capacity of three existing units is also being taken up. This industry is fully developed and most of the parts like compressors, conductors, high density polyesterene sheets etc. that were imported prior to 1962 are now available indigenously in sufficient quantities. The import centent is only about Rs. 50 per refrigerator, excluding a few steel items.

The production of certain types of air conditioning and refrigeration controls has increased and this is expected to result in a further foreign exchange saving of Rs. 1 million to Rs. 1.5 million per annum. The evaporator which was being manufactured out of stainless steel sheets and copper sheets are now manufactured with aluminium sheets. Also the copper tubes in the evaporators have been substituted with aluminium tubes by most of the manufacturers.

The installed capacity for the manufacture of industrial refrigeration and air conditioning equipment is of the order of Rs. 150 million per annum. In 1970 actual production was Rs. 64.4 million. The equipment is put to a variety of end-uses such as food presrvation, temperature control, etc. Application of the equipment is also being extended to medical and surgical lines. In order to meet the increasing demand of airconditioning and refrigeration equipment in the transport sector such as railways, buses, trucks etc. proposals for setting up of two new units are underway.

Prior to 1962 most of the equipment including compressors, condensors and chillers were being imported and only the assembly of the machine appliances was executed in India. Now the indigenous availability is rapidly increasing and the import content is reduced to a meagre 5 per cent.

Cooling towers is yet another area of growth. With 3 units engaged in the production, the licensed capacity is about Rs. 14.5 million per annum. In 1970 actual production more or less matched the capacity. Used extensively in plants, chemical plants, fertilizer and iron and steel plants, etc. the cooling tower industry in India has fairly developed.

Export of air-conditioning and refrigeration appliances in 1970-71 was of the order of Rs. 4.46 million. Nigeria, Thailand and Ceylon were the major importers. Additionally, the export value of refrigerators and parts in the same year was Rs. 443,350. Zambia, U.S.S.R., Australia, Kuwait, Ceylon, Iran, Sudan and Qatar were among the importers.

The room air conditioners sector has an installed capacity of 28,300 numbers. The actual production in 1970 was over 20,000 numbers thus registering a 56 per cent increase over the 1969 production at 12,900 numbers.

Exporting technical expertise, the Indian industry is collaborating in two joint ventures in Nigeria and Ceylon for the manufacture of airconditioners, coolers etc.

Electrical Wiring Accessories

There are a large number of units engaged in the manufacture of wiring accessories and fittings like, switches, holders, plugs, sockets. etc. They are in different designs and shapes ranging from round to hexagonal and also to multipoint.

The output of wiring accessories by the large scale units alone rose from 2.65 million in 1969 to 6.45 million numbers in 1970. Besides this the small scale units too manufacture a large number of such accessories.

Export of electrical wiring accessories during 1970-71 was of the order of Rs. 7.73 million. The main export directions were Iraq, A.R.E., Burma, Federal Republic of Germany, Vietnam Republic, Kuwait, Nepal, Nigeria, Qatar, Singapore, Sudan and Yemen Arab Republic.

Domestic Electrical Appliances

A wide variety of domestic electrical appliances like cooking ranges, stoves, iron heaters, kettles, hot plates, storage water heaters and geysers, washing machines, radiant room heaters, ovens, incubators, etc. are manufactured in the country by a large number of units.

Besides meeting the internal demand in full this sector has made notable headway in exports. During 1970-71 exports of such items amounted to Rs. 1.76 million as against Rs. 1.17 million in 1969-70. □

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INDIRA GANDHI
Prime Minister of India

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EXPORT ORDERS FOR ELECTRIC MOTORS AND TRANSFORMERS

A wide variety of electrical apparatus and appliances manufactured by the Indian industry is in rising demand abroad. Overseas interest for India-made electric motors, transformers and switchgears has been particularly on the uptrend. Kuwait, Federal Republic of Germany, Ghana, Malawi, Malaysia and Tanzania have recently placed fresh orders for these products. The value of the orders secured from these markets and on hand for execution during 1971-72 total Rs. 36.7 million.

M/s. Southern Switchgears Ltd., Avadi Road, Madras-53 secured an order from Malaysia for supply of switchgears to the tune of Rs. 18.3 million. This is a repeat order.

M/s. N. G. E. F. Limited, Post Box No. 384, Bangalore, received the order from West Germany to the tune of Rs. 9.4 million of which Rs. 5 million worth of supplies are to be effected during 1971-72.

In respect of the orders received from Tanzania and Malawi at a total value of Rs. 4.5 million, Messrs. Indian Consortium for Power Projects Pvt. Ltd., Delhi, have agreed to supply Rs. 2.8 million worth to Tanzania and Rs. 1.7 million worth to Malawi during 1971-72.

Tanzania has placed another order for large power transformers on M/s. Transformer & Electrical (Kerala) Ltd., Kerala. The value of the export deal is Rs. 2 million and the entire supplies are to be completed before March, 1972.

Transformers, switchgears and fuse boards of a value of Rs. 1.3 million will be supplied by M/s. Tata Exports Limited, Bombay to Kuwait during 1971-72.

M/s. Kirloskar Brothers, Poona, have finalised export business with Ghana for the supply of motor pump sets worth Rs. 1.2 million.

In 1970-71, India's total exports of electrical apparatus and appliances amounted to Rs. 212.92 million as against Rs. 202.20 million in the preceding year. The share of electrical controlgear, switchgear and transformer exports in the total was Rs. 22 million in 1970-71 and Rs. 18.4 million in 1969-70. Among other products in the line that were exported, electrical wires and cables fetched Rs. 112 million, radios and parts Rs. 15 million, electric fans and parts Rs. 14.2 million, dry and storage batteries Rs. 20 million, electric motors, starters and pump sets Rs. 11.19 million and wireless and other electronic equipment Rs. 1.5 million in 1970-71.

Other electrical apparatus and appliances that have been active in the export market include battery hargers, electrical accessories, electric fluorescent tubes nd fixtures, electric furnaces and ovens, electric amps and bulbs, electric measuring and control quipment, train lightings and railway signalling quipment, cable joint boxes, etc. Interestingly, the hare of electrical apparatus and appliances in the total xports of engineering products in 1970-71 was more han 20 per cent.

WAGON ORDER FROM EAST AFRICA

The East African Railways Corporation through their agents in the U.K placed an order on India for the supply of 50 petrol tank wagons. The first consignment of 16 wagons has already been supplied. The East African Railways, after ascertaining the high quality of the products, increased the number of wagons to be supplied from 50 to 100. The total value of the order works out to Rs. 12.7 million and all the 100 will have been exported by 1972.

The petrol tank wagons to be supplied by M/s. Burn & Co., Calcutta have a carrying capacity of 37.8 tonnes each for various types of petroleum products including motor spirit, aviation fuel, kerosene and diesel oil. With increasing industrial development in the East African countries their consumption of petroleum products has been steadily growing. This has necessitated building up of larger railway transport capacity in respect of petroleum products. During the last year and a half, the Calcutta firm have been able to secure export orders for heavy engineering products worth Rs. 200 million including the order from East Africa. They are also manufacturing wagons for export to other countries, notably Yugoslavia.

More details of export orders received by the Indian Industry for supply of railway equipment have appeared in the previous issue of the Weekly.

FISHING TRAWLER TO INDONESIA

India achieved a breakthrough in her export trade when a Kerala built mechanised fishing boat has been exported to Indonesia. The 32-foot vessel built with completely indigenous materials by a Cochin party, namely, M/s. Coromandal Marine Works was the first fishing trawler to be exported. Negotiations are underway with a fishing firm in that country to establish a boat building yard and a fishery complex there. A marine firm in Ceylon also has had discussions with the firm on the export possibility of technical know-how and for developing a fishery complex in Colombo.

India's export value of marine products in 1970-71 stood at Rs. 351 million (35,883 tonnes), against Rs. 335 million (31,695 tonnes) in the preceding year. In the first half of 1971-72, the export value of marine products marginally rose to Rs. 176.0 million against Rs. 175 million in the corresponding period of 1970-71. The

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Government of India have under active consideration a proposal to set up the Marine Products Export Development Authority to undertake measures for development of the industry with an emphasis to increase the availability of raw material, especially shrimps and other fishery products, by encouraging deep sea fishing.

Deep sea fishing has been accepted as one of the industries for foreign collaboration. Capital items of machinery required for production, improved processing methods and packing have been included in the list of items eligible for import by registered exporting units in the field.

EXPORT ORDER FOR COIR GOODS

The Kerala State Coir Corporation secured fresh export orders worth Rs. 5.5 million for overseas supplies of coir mats and mattings. Bulk of the orders has already been executed. Since its inception in 1969, the Corporation had so far exported coir products worth about Rs. 5.2 million. The Corporation has been set up under a scheme for revitalization of the coir industry and purchase of coir goods from small scale manufacturers.

India's total export quantum of Coir goods in 1970-71 was 521, 186 quintals at a value of Rs. 138.52 million. Of this, coir yarn exports amounted to Rs. 76.45 million, coir mats and mattings Rs. 47.65 million, coir rugs and carpets Rs. 12.85 million. Some exports of coir fibre, curled coir, coir cordage and ropes and rubberised coir goods were also effected.

The Government of India are taking appropriate steps to strengthen the coir industry's production and stabilise production. Measures are also being taken to modernise the industry and improve the quality of export products.

TEA BAGS FOR EXPORT

With the shifting pattern of tea trade in affluent markets abroad, conventional packaged tea is being replaced with more fashionable and convenient tea bags.

M/s. Brooke Bond India Limited, P. O. Box 187, Calcutta, have recently shipped the first consignment of tea bags to suit the changing consumer preferences abroad. They have introduced three brands of tea bags in the market.

In 1971 the firm earned Rs. 122 million through export, of which Rs. 23 million emerged from overseas supplies of non-traditional varieties.

EXPORT OF RUBBER PRODUCTS UP

Exports of rubber products increased to Rs. 61.60 million in 1970-71 from Rs. 46.83 million in 1969-70. Of the 1970-71 exports, tyres and tubes accounted for Rs. 61.60 million, and material of rubber like sheets, pipings and tubing Rs. 3.09 million. Beltings fetched Rs. 1.64 million.

During 1971, one exporter, M/s. Dunlop India Ltd., effected exports of their rubber products to the tune of Rs. 33.4 million representing an increase of 9 per cent over their previous year's performance. The party has achieved this increase due to a well planned export promotion drive.

The highlights of the company's export performance were an order of Rs. 15.6 million from Czecholsovakia and another valued at about Rs. 0.42 million from the Democratic Republic of Korea. The products exported by the party include a variety of automotive tyres, cycle rims, rubber solution, fan and Vee belts, transmission belting and braided hose. The company has developed a special range of products for export markets, particularly for the sophisticated U. S. and European markets.

COAL TO CEYLON

The Minerals and Metals Trading Corporation have recently won a contract from Ceylon for supply of 10,000 tonnes of selected A grade steam coal. The Corporation expects to complete the shipments shortly.

Earlier the Corporation have almost completed shipments in respect of an order received from Burma last year. Burma sought about 184,000 tonnes of steam coal, 26,360 tonnes of slack coal and some quantity of coke.

Since 1964, the MMTC have been handling export of coal. The varieties of coal/coke exports that are at present canalised through the Corporation are coking coal (all types), coke (all types) and non-coking coal (Seleted 'A' and selected B grades). In 1970-71 India's export value of coal/coke and briquettes was Rs. 40 million as compared to Rs. 20.54 million in the preceding year. MMTC's share of exports was Rs. 38.39 million in 1970-71.

Since the exports of coal were entrusted to the MMTC, besides the neighbouring markets like Burma and Ceylon, the Corporation has marketed Indian Coal/Coke in other countries such as West Germany, Nigeria, Singapore and Japan. The export target for 1971-72 has been fixed at about Rs. 42.5 million.

As for the prospects of exports to Europe, that continent has substantial resources, no doubt. But European coal is known to contain higher proportion of sulphur which during combustion gets converted into sulphur dioxide. This leads to air-pollution - a major health hazard. Thus there is a possibility of exporting Indian non-coking coal to European countries on account of its low sulphur content.

MINERAL PROCESSING EQUIPMENT TO BURMA

The Mineral Development Corporation, Rangoon, has selected an Indian firm as supplier of a special type of mineral processing equipment. The selection of the Indian exporter was against keen competition from reputed manufacturers elsewhere in the world. The equipment, namely, Adjustable Stroke Feeders for Minerals has already been supplied.

The Indian firm, which secured the order, M/s. Mecanico, 15, Okhla Industrial Estate, New Delhi-20, designs and builds a variety of plant and equipment for chemical, cement, ceramic, coal, dyestuff, fertilizer, food, mineral, mining, non-metallic, metallurgical, oil, ore dressing, paint, paper, petroleum, pharmaceutical and refractory industries.

A variety of industrial machinery made in India have already entered the export market. Mining and construction machinery were exported in 1970-71 to Trucial Oman, Burma, Ceylon and Arab Republic of Egypt.

AWARD FOR FERTILIZER TECHNOLOGY EXPORT

The Indian Chemicals Manufacturers' Association have decided to confer the award for export for 1971 on M/s. Fertilizers and Chemicals Travancore Ltd., Udyogamandal (Kerala) for its outstanding achievement in exporting technology, basic design and engineering services for the manufacture of Ammonium Chloride to Brazil. This is the first time that an Indian Unit has been able to export its technology in a major way abroad.

The firm provided technical know-how, basic design and engineering assistance to set up a 3000 tonnes per annum pure Ammonium Chloride plant for M/s. Engeclor Industries, Quimica, South America (Brazil). Brazil was importing about 3000 tonnes of Ammonium Chloride per year to meet the requirements of domestic industries. The Engeclor Plant built at the industrial region of Cubatao, with the Indian assistance has commenced production from March 1971. It has fulfilled the much needed gap in meeting the internal requirements of Ammonium Chloride in Brazil. With very minor changes the plant can produce upto about 4500 tonnes of Ammonium Chloride per year.

EXPORT PERFORMANCE AND POTENTIAL

EXPORT GROWTH FOR SELF-RELIANCE

The recent Indo-Pak conflict has shown how vital and urgent is the need for securing a rapid increase in India's export trade. Without a steep and quick increase in exports, the national objectives of self-sustained growth and stoppage of foreign aid cannot be achieved. Systematic exploitation of export markets is an important means of making a fuller use of the economies of scale which characterise modern industry. At the same time, the growth of labour-intensive export products can make a significant contribution to the mitigation of the unemployment problem.

India's exports increased by 4.1 per cent in 1969-70, the first year of the Fourth Five Year Plan. During 1970-71, exports increased by 8.3 per cent. As a result of the highly successful efforts in 1970-71, the country's trade deficit declined from Rs. 1695 million in 1969-70 to Rs. 976 million in 1970-71, the lowest level for the past fifteen years. During 1971-72, for the first seven months of the year, exports have totalled Rs. 9090 million as compared to Rs. 8520 million in the same period during the last year, showing a growth rate of 6.7 per cent.

In the current year, the export picture is a mixed one. Among the factors which have adversely affected the export prospects are the currency crises in the advanced economies, protectionist steps adopted by the USA and some other countries in the West and the consequences of the 14-day Indo-Pak war. On the other hand, the introduction of the Generalised System of Preferences by Countries of the Common Market and Japan have set in a liberalising trend in favour of the products of the developing countries like India.

The Indo-Pak war has caused a set-back to the national export drive. There have been losses on the export in the month of December and following weeks due to non-shipment of goods, cancellation or postponement of orders, deliveries etc.

In the light of the actual performance in the first seven months of the year (April-October 1971) and taking into consideration the effects of the Indo-Pak conflict, it is clear that the country will have to make a major and renewed effort to achieve the plan target for exports.

In recent months, a major effort has been initiated to broad base the country's export effort which is now confined to a limited number of organised units. The Government are keen to assist all competent units, particularly in the small and medium sectors, to expand and become more efficient in exporting over as short a period of time as possible. A scheme has been evolved to assist all industrial units desiring to enter the export field and build up their export potential and thus become eligible for the special treatment accorded to the export-oriented units. Such units will be encouraged to put forward phased programmes of exports of their products so as to achieve within a short period of time a level of exports equal to those of the existing export-oriented units.

In order to accord greater stability necessary for the growth of exports, a scheme has been introduced for the registration of export contracts involving deliveries over a period of not less than six months.

The Government are actively pursuing a policy of diversification of foreign trade in regard to the destinations of export trade and in respect of the sources for meeting import requirements. The cooperation which India has received from the Centrally Planned Economies of Eastern Europe, in particular from the USSR, has assisted her greatly in the realisation of export objectives. It is proposed to further expand trade with the Centrally Planned Economies of Eastern Europe and with the developing countries of Asia, Africa and Latin America and strengthen trading links with these countries quickly.

Thanks to the greatly diversified industrial structure of the country today, it is now possible to sustain a large scale export effort in which both traditional and non-traditional items can play an important role. Managerial and technological skills; including knowledge of techniques of international marketing have considerably increased in the last two decades. Institutional arrangements for the promotion of exports have also been greatly strengthened. It is possible now, as never before, to achieve a significant breakthrough in exports, which are so vital for securing expanding levels of income and employment and take the country forward on the path of self-reliance.

EXPORT PERFORMANCE OF SILK PRODUCTS

Export of pure silk products amounted to Rs. 56.27 million during January-October 1971. Of this, the export value of mulberry silk fabrics was of the order of Rs. 47.53 million. The export earning of tasar silk fabrics amounted to Rs. 8.7 million.

During 1970 the total value of silk fabric exports was Rs. 134.87 million.

West Germany continues to be the key market for Indian silks. Demand for mulberry sllk in that market showed considerable increase during 1971. Other important markets are U.S.A., Malaysia, France, Japan, the U.K. and Kenya. There has been a notable increase in exports of silk scarves and ties to the export markets. The printed ties of Indian silk particularly seem to have caught the imagination of the Western markets.

The area under mulberry cultivation expanded from 90,000 hectares in 1969 to over 98,000 hectares in 1970. According to the statistical sample survey carried out by the Government of Mysore, the estimates of Mulberry leaf yield in rain-fed gardens was 3,279 kg. for 6 pickings while in the case of irrigated gardens it was 16,692 kg. per hectare per annum for 5 pickings. At 20:1 as the leaf to cocoon ratio, the production of cocoons could be increased four to five-fold with the provision of irrigation facilities.

RAW JUTE EXPORTS TO U.K. RESUME

India has resumed export of jute to the United Kingdom after a lapse of nearly 12 years. A contract for the supply of a specified quantity of jute was signed recently between the representatives of the State Trading Corporation and the Jute Corporation of India on the one hand and by the Dundee Jute industry on the other. Shipment against the contract is expected to begin from this month.

The Indian Jute Development Council have recently fixed the production target from combined raw jute and mesta for the 1972-73 season at 8.1 million bales comprising 6.5 million bales of jute and 1.6 million bales of mesta. The estimate of the current season's crop (1971-72) has been placed at about 7 million bales. In recent years the production of raw jute had been sought to be raised through intensification of jute and mesta development efforts. The programmes that have already been launched include special package programme on jute and mesta, aerial spraying of urea, quality improvement, effective development of jute seeds etc. As a long term plan, intensive research is to be conducted to evolve short duration high yielding varieties and to provide protective irrigation in traditional and non-traditional areas.

PROCEDURE FOR EXPORTS TO GSP AREAS

The Government of India have authorised seven Governmental authorities and their regional offices to issue certificates of origin under the Generalised System of Preferences, (GSP). The authorities are: Export Inspection Council; Central Silk Board; Coir Board; Textile Commissioner (Textile Committee); All India Handicrafts Board; Jute Commissioner; and Chief Controller of Imports and Exports.

The Generalised System of Preferences under which tariff concessions to developing countries have been extended by these developed countries, require the exporting parties to furnish a certificate of origin to qualify for the preferential treatment under the GSP.

The Member-States of the European Economic Community (EEC) introduced the GSP with effect from July 1, 1971. They had, however, permitted imports of products claiming GSP benefits from the beneficiary countries without the certificates of origin in prescribed form up to December 31, 1971, provided the certificates of origin as prescribed under the GSP would be furnished later on.

Japan introduced GSP from August 1, 1971. She had permitted imports from the beneficiary countries without prescribed certificates of origin up to November 30, 1971, which has since been extended to January 31, 1972, provided the certificates of origin in the prescribed form would be furnished to the Japanese Customs authorities at a later date.

Norway also introduced her GSP offers with effect from October 1, 1971 and her Rules of Origin are based on those already applied by Member States of the EEC.

Sweden has introduced her GSP offers with effect from January 1, 1972.

IRON ORE EXPORTS FROM GOA

Exports of iron ore and pellets from Marmugao harbour reached an all-time peak during 1971 at 10.42 million tonnes as against about 9.64 million tonnes in 1970.

With the export of 1.71 million tonnes of iron ore and pellets, M/s. Chowgules and Company topped the list of exporters. Their share of iron ore exports from the harbour was about 16.45 per cent with an export earning of over Rs. 110 million. Next to the firm, the other major exporters are M/s. V. S. Dempo and Co. whose export quantum in 1971 was 1.26 million tonnes, M/s. V. M. Salgaokar and Brothers with over one million tonnes to their export credit and M/s. Sociedade Fomento Industrial, whose exports also amounted to over one million tonnes in the year.

The export trade in iron ore from India except of Goan origin is canalised through the Minerals and Metals Trading Corporation. In 1970-71 India's total exports of iron ore amounted to about Rs. 1154 million (20.81 million tonnes) of which MMTC's share was a little over Rs. 800 million (12.11 million tonnes), the rest having orginated from Goa.

The main buyers of Indian iron ore are Japan, Rumania, Czechoslovakia. Poland, Hungary, Yugoslavia, Belgium and Netherlands. Japan, however, constitutes the largest single buyer. In 1970-71, Japan purchased Rs. 902.6 million (16.89 million tonnes) worth of the ore from India, while East Europe absorbed Rs. 188.6 million (304 million tonnes) and West Europe Rs. 61.1 million (0.82 million tonnes).

ECONOMIC GROWTH AND INDUSTRIAL DIVERSIFICATION

MID-TERM APPRAISAL OF INDIA'S FOURTH PLAN

The Fourth Plan mid-term appraisal has been recently presented to the Parliament by the Union Minister for Planning. The progress of the economy during the first two years of the plan period 1969-70 and 1970-71 has been detailed. Production of foodgrains which was 94 million tonnes in the pre-plan year, namely 1968-69, improved year after year to 99.5 million tonnes in 1969-70 and 107.8 million in 1970-71. Against the Fourth Plan target of 129 million tonnes the likely achievement in this sector by 1973-74 has been placed at 122-125 million tonnes.

In the industrial field, the index of output rose by 6.6 per cent in 1968-69 and by 6.9 per cent in 1969-70. The rate of growth however declined to about 3.5 per cent in 1970-71. Many of the core industries including alloy and special steel, aluminium, nitrogenous fertilizer, agricultural tractors, power tillers, newsprint, coking coal and petroleum registered production growth during the first two years of the plan. There was, however, a decline in the output of certain items including copper, zinc, machine tools and iron and steel.

In the non-core sector, increases in production have been registered in a number of industries such as cotton textile machinery, sugar mill machinery, commercial vehicles, automobile tyres, electric transformers, electric motors, electric fans, storage batteries, radio receivers, paper and paper board and cement. Further step–up in their production is anticipated in 1971-72. A fall in output in 1970-71 as compared to the preceding year was however noticeable in cement machinery, power driven pumps, sewing machines, diesel engines, sulphuric acid and sugar. Their recoveries are expected to take place in the current year.

Production of mill cloth, which was around 4200 million metres in 1969-70 and 1970-71 is expected to improve to 4300 million metres in 1971-72. The likely achievement by 1973-74 has been placed at 4500 million metres. The mid-term appraisal indicates that in respect of a number of non-core industries the plan targets could be fulfilled including power driven pumps, electric transformers, electric motors, paper and paper board, cement, automobile tyres, jute manufactures, sugar and vanaspati.

In the power sector, cumulative capacity for electricity generated rose from 15.5 million kw in 1969-70 to 16.5 million kw in the following year. The anticipated cumulative capacity in 1971-72 has been placed at 17.7 million kw. Likewise the achievement in regard to rural electrification can be witnessed from the rise in the cumulative total at 89,977 villages electrified during 1969-70 to 105,438 villages and 123,100 villages electrified in the following two years respectively. It is anticipated that as many as 150,000 villages covering 43 per cent of the rural population might be electrified by the end of 1973-74. The plan target for energisation of 1.25 million additional pump sets is likely to be realised by 1973-74.

The record of freight traffic handled by railways was 208 million tonnes and 199 million tonnes respectively in 1969-70 and 1970-71. The passenger traffic on the railways increased by 5.7 per cent in 1969-70 and 6 per cent in 1970-71 ver the preceding years. As regards shipping e operational tonnage is expected to reach 2.5 million RT by 1971-72.

RODUCTION RECORD OF RDNANCE UNITS

Ordnance factories and the tank factory at Avadi Madras) established an all-time high production ecord in December 1971. When Pakistan launched pre-meditated pre-emptive strike on December 3, 971, a new task was set before the ordnance factories. They rose to the occasion and stepped up production arying from 40 per cent to 400 per cent.

In addition to 28 ordnance factories, there are eight ublic sector undertakings under the Ministry of Defence. These manufactured MIGs, HV-24, HS-748 ircraft and Aloutte helicopters for the Air Force, rigates for all the Navy and communication equipment nd radars for all the three services. Production in hese factories in 1971-72 is expected to be of the order f Rs. 1790 million against Rs. 1610 in 1970-71.

The factories supplied 1000 lb. bombs, 90 mm and 30 mm. cannon ammunition, electric, engine starter catridges for aircraft, pyrotechnics, flares, smoke generators, rockets and rocket heads. They supplied to the Army, ammunition for small arms, field guns, recoiller guns, anti-aircraft guns, mortar bombs of various types like 2″, 3″, 81 mm and 120 mm, demolition charges, various kinds of grenades, anti-tank and anti-personnel mines and shells for Vijayanta tanks. The Navy was supplied explosives, and components, for the Naval high performance, 4″ and 4.5″ guns and the 6″ cruiser machine armament, depth charges for anti-submarine attack, engine starter cartridge for the Naval aircraft, demolition stores, various kinds of Naval Pyrotechnies, rockets, anti-submarine projectiles and anti-craft ammunitions.

The ordnance factories carried out innovations and adopted better working methods to increase production. One ordnance factory devised a die-cast and heat treatment method to manufacture adapters for supersonic air fighters to enable it to carry 1000 pound bombs. An ammunition factory designed and manufactured for the first time scare charges for the Navy. These charges were required by the Navy to keep the enemy frogmen and midget submarines away from Indian ports. A high explosives factory produced a special kind of fuel of very stringent specifications and was able to meet the entire demand of the Air Force.

By adopting better working methods, another ordnance factory increased production of bonacord by nearly 100 per cent. A new furnace for melting high strength aluminium alloys was fabricated at an ordnance factory, to keep the production of defence equipment going. This became necessary because the imported aluminium foundry had to be closed for three months for normal repairs.

An advance strike aircraft incorporating the latest technology would be manufactured in the country for operational role with the Air Force in the near future. Arrangements for the manufacture of an improved version of MIG-21 called MIG-21-M have been completed and its production was expected to begin in 1973-74. Production of aircraft accessories and instruments like brake and hydraulic equipment, flight instruments, air-conditioning pressurisation and fuel system equipment was expected to begin towards the end of 1972 at the new factory at Lucknow.

INS 'Nilgiri', the first India-built Leander Class frigate is now undergoing trials and would join the Navy in 1971-72.

As regards import substitution, the Department of Defence Supplies have embarked upon an ambitious programme of indigenous development of defence hardware with the twin object of broadening the base of defence production and of reducing dependence on imports. The Department had already achieved a notable success in import substitution and had placed with Indian manufacturers orders worth Rs. 279 million during the current year as against Rs. 205 million in 1970-71.

Some of the sophisticated items like bomb bodies along with tail units and nose adapters, fuse with time mechanism and mounting tripods for guns had been successfully developed and supplied. Other critical items used in mines, anti-tank grenades and body and cap of anti-tank rifle grenade had already reached an advanced stage of development and trial. Five special electronic and electrical items for L-70 anti-aircraft gun had been developed. Sighting instruments, gear box controller, cable reel assemblies and track links for Vijayanta tanks had been produced. Recently a firm had successfully developed a bullet proof plastic helmet. It is expected to be manufactured out of indigenous raw material.

SELF-SUFFICIENCY IN RICE

With an all time record production of rice of the order of 42.45 million tonnes, India has become self-sufficient in rice. During 1972 and onwards, it is not envisaged to import rice for domestic requirements.

During 1970 India imported 200,000 tonnes of rice as against 780,000 tonnes in 1965.

Self-sufficiency in rice production can be attributed largely to the release of half a dozen high-yielding, short duration, fertiliser-responsive varieties of rice which are widely adaptable to varied climatic conditions in the country, according to top agricultural experts of the Government of India.

According to the latest statistics, the average yield of rice has increased from 668 kg. per hectare in 1950-51 to 1134 kg. per hectare at present.

During 1970-71, West Bengal recorded the highest production of rice by contributing 6.1 million tonnes to the oountry's granary.

The highest per hectare yield was achieved in Tamil Nadu which produced 1974 kg. per hectare.

The Agriculture Minister of the Government of India also feels that, at the moment, the country has enough pucca storage capacity and thus future bumper yields on the rice front would not pose any serious storage problem.

ZINC CONCENTRATES—
AN OUTLOOK

Hindustan Zinc Limited, Udaipur, has plans to dispense with import of zinc concentrates in 1971-72. In the remaining period of 1971-72 they are to import only about 5000 tonnes of the concentrates for feeding their smelter. Their expectation to stop imports is based on the likely coming into production of two mines with a capacity of 2,000 tonnes each per day. Earlier the company concluded a contract with Bolivia for the import of 20,000 tonnes of concentrates the delivery of which was to be completed by December 1971.

Thanks to the efforts of M/s. Hindustan Zinc Limited, the production of zinc concentrates improved year after year-from 9,600 tonnes in 1966-67 to 12,500 tonnes in 1968-69 to the present level of 16,000 tonnes. Production of zinc ingots by this unit was around 10,000 tonnes in 1970. Production of ingots by the other units in Kerala was of the order of 13,600 tonnes.

Though in small quantity, zinc alloys, bars, rods, angles, plates, sheets, tubes, pipes and fittings were exported to the tune of Rs. 417,000 in 1970-71.

TOBACCO CROP IN ANDHRA PRADESH

The area under tobacco crop during 1970-71 is estimated at 214,600 hectares as against 2,04,800 hectares during the previous year, representing an increase by 5 per cent, according to the final forecast report on tobacco crop in Andhra Pradesh which is the major source of tobacco in the country. The area estimated includes that under Virginia and other varieties of tobacco crop.

The production of tobacco during 1970-71 has been estimated at 129,200 tonnes of cured leaf representing an increase in production of 4 per cent as compared to the preceding year.

The production under virginia is estimated at 81,200 tonnes as against 87,000 tonnes while the output of other varieties is estimated at 48,000 tonnes against 37,500 tonnes in the comparable years.

(A feature on India's tobacco industry appeared in Vol I. no 27 of this Weekly, dated December 4, 1971).

SPECIAL DRAWING RIGHTS TO INDIA

India will receive Rs. 747.3 million under the allocation in Special Drawing Rights of the International Monetary Fund (IMF).

Total allocations which were announced by IMF to 112 nations participating in the Fund's SDR account aggregates to Rs. 21750 million ($ 2.95 billion).

The present allocations are effective from January 1, 1972. The first and second allocations under the SDR programme were made in the two preceding years. The programme was adopted by the IMF in

1969 with a view to add liquidity in international payments transactions.

As in the past, major portion (about $ 2 billion) of the current allocation of $ 2.95 billion is shared by large industrialised countries. The sums allocated to the main industrial countries are U.S. $ 710.2 million, U.K. $ 296.8 million, West Germany $ 169.6 million, France $ 159 miilion, Japan $ 127 million, Canada $ 116 million, Italy $ 106 million, Australia $ 70.5 million, Netherlands $ 74.2 million and Belgium $ 68.9 million, it is reported.

HEAVY MACHINE BUILDING PRODUCTION TRENDS

The Heavy Machine Building Plant (HMBP) of the Heavy Engineering Corporation turned out a total of 14,714 tonnes of mechanical equipment in the first nine months of 1971-72 (April-December). In the full year of 1970-71 the plant's production was of the order of 15.994 tonnes of mechanical equipment.

The saleable despatches of finished castings, forgings and rolls by the Foundry Forging Plant amounted to 15,173 tonnes in the period under review of 1971-72 as against 16,000 tonnes for the full year of 1970-71.

The plant established a new record of production in December 1971 when it turned out 3093 tonnes of finished products valued at Rs. 33 million.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL PROGRESS

PRODUCTION PROCESS FOR SPICES EXTRACTS

The Central Food and Technological Research Institute Mysore has developed a process for the production of spices extracts known as oleoresins from various spices. The process is of export significance as spices extracts are increasingly finding application in food processing industries for flavouring meat and vegetable products in Western markets. There is good potential for oleoresins industries in India as raw materials and solvents required are sufficiently available indigenously.

PROGRESS IN COTTON RESEARCH

The regional station of the Indian Agricultural Research Institute, Coimbatore, has successfully undertaken a series of research programmes to increase cotton production.

Following intensified research work, 5 new varieties have been evolved of which the release of M.C.U. 5 and "Sujatha" constitute a major breakthrough in cotton research, to ensure better fibre and spinning quality.

The All India Cotton Workshop have recently released these new varieties of cotton, namely Hybrid-4-cotton developed in Gujarat, Desi cotton 3943, Khandwa-2, J. 205 variety, 1143 variety and Desi cotton 0078-F.

With about 8 million hectares under cotton, India ranks first in the cotton acreage and fourth in total cotton production in the world. Production of cotton in the country increased by nearly 100 per cent during the past two decades - from 2.6 million bales in 1949-50 to 5.2 million bales in 1969-70.

The evolution and spread of improved strains like 320-F, H-14, Deviraj and Digvijay, M.C.U. etc. have helped the Indian cotton textile industry to rely more on indigenous production for better quality raw material. A Co-ordinated Cotton Improvement Project is underway to evolve better yielding varieties of cotton suitable for different tracts and develop improved agronomic practices and crop protection schedules for realising high yields. The research programme under this project is being carried out in nine centres, 16 sub-centres and 32 testing centres located in agricultural universities.

PATENTS FOR INDIAN INVENTIONS

In 1970 applications for patents in various fields of science and technology based on inventions in India totalled about 1280. About 68 per cent of the applications originated from Maharashtra, Delhi and West Bengal. Patent applications filed by both Indian and foreign parties during the year were 5142. The revenue earning on account of patents and designs (fees) totalled Rs. 2.04 million representing 4 per cent increase over the preceding year's income.

Chemical industries account for a large number of applications for the patents, a majority of which were concerned with plastics, dyes and drugs. Indian inventions in the chemical field relate to development of mica powder and preparation of alkaloids, quinazolinones, ethyl acetate, methanol, resin compositions, tartaric acid and alcohols from 'mahwa' flowers.

Noteworthy Indian inventions in mechanical engineering field related to shot guns, jet propulsion engines, speed drive mechanism, washing machines, rail vehicle air-conditioning system and safety devices for water cooled diesel engines. Many Indian inventions in electrical field like electric switches, relays, alarms, voltage boosters and circuit for protection against single phasing deserve special mention.

In textile technology, Indian inventors were active in designing fibre length measuring devices, shuttleless looms, bobbins and winding and doubling devices.

In the field of metallurgy, Indian inventions were concerned with the production of spheroidal cast iron and aluminium base alloys, briquetting of orofines and recovery of zinc from waste, extraction of nickel and cobalt from lateric and linonitic metalliferrous ores and coating razor blades.

In respect of food and agriculture, Indian inventions related to tractors, seed drill and various other agricultural and domestic appliances. Inventions for manufacture of jaggery, cane syrup and soluble tea also deserve mention.

A limited number of applications were concerned with field or civil engineering. The inventions were concerned with production of brick blocks, refractory compositions, doors, windows, locks, paper house, roof sheets, rock anchors and joints for prestressed concrete piles. Other inventions in the field related to canal bed sluice gates, prefabricated structures for irrigation and diversion of water.

DEVELOPMENT OF NEW JUTE LOOMS

Based on the findings of the Indian Jute Industries' Research Association (IJIRA), a Bombay firm, M/s. Star Textile Engineering Works developed modernisation equipment for the Jute industry. The development of the new jute loom equipment augurs well for the future of the jute industry in the country. The trials taken on the first prototype frame by the IJIRA have shown an increase of upto 20 percent in productivity compared to even the new jute spinning machines of conventional type. The cost of modernisation compares well with that of new machines, with the result that higher productivity can be achieved on old machines at a substantially lower cost. The company will be able to turn out about 100 frames per annum at its existing capacity while steps are being taken to expand capacity to 300 machines per annum.

The firm had earlier developed prototypes of hydro-copying units and multi-spindle drilling heads. They have plans to diversify production into other new fields such as water and air purification plants and equipment and finishing machinery for cotton textile man-made fibres.

OXALIC ACID FROM SAW DUST

The Regional Research Laboratory, Jorhat has developed a process know-how for the manufacture of oxalic acid using saw dust, nitric acid and caustic soda as main raw materials. A catalyst required in the process is imported. In the process, saw dust is oxidised with nitric acid in presence of a catalyst at controlled temperature. The evolved nitrogen oxides are absorbed in absorption towers with dilute nitric acid which is re-used in the process. Work has been carried out on 20-25 kg/day capacity pilot plant.

Oxalic acid is used in textile, metal polishing and other industries. The present consumption of oxalic acid in India is estimated at about 400 tonnes per year. Oxalic acid is being manufactured in the country, using sugar as raw material. The developed process will replace sugar by saw dust, a cheaper raw material.

HEAVY ELECTRICALS

To meet the needs for the power expansion programme, India entered the field of heavy electrical equipment manufacture a decade ago. Though a modest beginning, it was significant, as it set in motion a cycle of devlopments resulting in absorption of sophisticated designs and manufacturing practices.

Appreciable progress has been made during the last two decades in power development with a seven fold increase in the installed generating capacity i.e. from 2.3 million kw at the commencement of the First Five-Year Plan to 16.7 million KW by the end of March 1970. Nuclear power generation has also started in the country. The rapid growth in power generation and the need to achieve self-sufficiency in heavy electrical equipment has led to the creation of a broad based power equipment industry.

Generating sets

The total estimated capacity for generating sets is placed at 5.0 million KW per annum. Large hydro and thermal power generating sets comprising generators and turbines are now being manufactured by the Heavy Electricals (I) Ltd. Bhopal and the Hardwar and Hyderabed units of the Bharat Heavy Electricals Ltd. The Bhopal factory has a capacity to manufacture hydro turbines up to 200 MW, steam turbines up to 120 MW for fossil-fuel stations and 230 MW for nuclear stations and A.C. generators up to 2500 KW for industrial uses.

The ultimate capacity output of the Hardwar unit of BHEL will be 1500 MW turbo sets and 1200 MW of hydrosets per annum while the Hyderabad plant will have a capacity of 900 MW turbosets per year.

The plants have already supplied generating sets to various power stations in the country.

Transformers

From a very modest beginning 30 years ago, the transformer industry is today capable of designing and manufacturing the largest transformers up to 400 KV.

Back in the late thirties, two Indian firms started making small Distribution Transformers. Those were the days when demand was small, the country had not yet entered the planning era and the little that was made was sold without difficulty. Nevertheless, the foundation for a gigantic industry of the future was laid.

The launching of the second plan heralded the beginning of a boost in transformer production along with the other electrical equipment and hardware and since then, there has been no going back. Not only has the output grown enormously so also has been the widening of the variety and sophistry of transformers produced. At one end of the scale, small transformers up to 100 kVA are being produced, on almost a flow line basis thanks to the large demand from the rural sector and at the other, transformers up to 250 MVA, 220 KV, large rectifier and furnace transformers are being manufactured.

Production of transformers by the 23 units went up from 5.04 million kVA in 1969 to 7.5 million kVA in 1970. Besides, the HEIL factory at Bhopal has a capacity to produce transformers up to 400 kV and 400 MVA class.

The factory has already manufactured more than 400 power transformers and among these mention may be made of the 250 MVA transformers for the Atomic Power plant in Rajasthan.

Further growth of the industry closely follows the growth of generating capacity. A 10 per cent annual growth with 40 million kW additional installed generating capacity corresponds to approximately 40 million kVA of transfer output per annum or nearly twice the aggregate output of the last 15 years.

The Thiruchinapalli Boiler unit of BHEL is designed to manufacture boiler and boiler house equipment for thermal power stations and industrial installation and will have an ultimate capacity of 36,000 tonnes of boilers per year. Two more manufacturing units have been licensed to take up the manufacture of boilers required for thermal stations up to 200 kW.

Besides power boilers, industrial boilers of different types and ranges and boiler mountings are being produced in the country. The total production of boilers and boiler mountings during the year 1970 was over Rs. 300 million.

Switchgear and controlgear

Before 1953, there was hardly any production of switchgears and controlgears in the country. The manufacture was actually confined to production of low tension switches, switch fuses etc. With the expansion of power generation in the country, the industry got an impetus and with the beginning of the Third Five Year Plan (1961-66) the industry was well on its way to notable progress.

The industry today is self-sufficient in capacity and know-how for switchgears up to a rating of 230 kv and it can meet practically all needs of the country for

HT and LT switchgears. Switchgear of 400 kv class is also under development. The products of the industry can be broadly classified as follows :

Low tension circuit breakers : There are 15 manufacturers in the country manufacturing circuit breakers of oil immersed as well as air break type up to a current rating of 3000a. One unit has started making circuit breaker (air) up to 6400a. These units have adequate manufacturing capacity to meet the demand even beyond the Fourth Five-Year Plan.

High tension circuit breakers : There are 15 manufacturers manufacturing HT circuit breakers of which seven units make circuit breakers of 66 kv class and above. One more unit has been recently licensed to manufacture 66 kv class circuit breakers. Their aggregate manufacturing capacity can meet the demand till the end of the Fourth Plan.

Switches, fuse switches, switchfuses (low tension) : Switchfuse units of industrial type with HRC fuses are manufactured by 11 manufacturers in the organised sector. The small-scale units manufacture iron-clad switches with rewirable fuse units. There are 80 such units in the country. Practically all types of needs can be met indigenously.

Switches, fuse switches/switch-fuses (high tension) : Twelve units in the organised sector manufacture high tension isolating switches and dropout fuses. Besides, a few units in the small-scale sector offer these types of switchgear. One unit in the organised sector has successfully developed isolating switches of 400 kv which have been tested at ASEA, Sweden. There may not be any handicap in meeting the home demand.

Motor controlgear : Contractors and AC motor starters of various types are manufactured indigenously. Motor starters are available up to a rating of 400a. Contractors of rating up to and including 350a are being manufactured. Air-break contractors up to a rating up 170a are also made indigenously.

With the increase in internal and external demand, the production has been going up over the years. In 1970-71 the production of switchfuses and fuse switches up to 660v stood at 81,700 numbers as against 59,930 numbers 1969-70 while that of circuit breakers up to 660v reached 9200 numbers from 7896 numbers. Production of high tension circuit breakers in 1970-71 was of the order of 5250 numbers and 3720 numbers in 1969-70. During these two years output of HT isolator and dropout fuses, motor starters and contractors were 39,900 numbers and 29,600 numbers, 514,000 numbers 523,654 numbers and 445,129 numbers and 299,492 numbers respectively.

Estimated demand by 1973-74 for these items is placed at: switchfuses and fuse switches 90,000 numbers, isolaters and drop-out fuses 37,500 numbers, LT and HT circuit breakers 15,870 numbers, starters and contractors 1.66 million numbers.

Capacitor and Condensor

The capacitor industry in India is developing at a fast rate. The power-factor improvement capacitors are generally divided into synchronous condensors and static capacitors. Condensors generally of large ratings are manufactured at the Heavy Electricals (India) Ltd. Bhopal.

Static capacitors for power-factor improvement are manufactured by about a dozen manufacturers in the organised sector, eight of whom are at present manufacturing capacitors up to 11 kV, three manufacturers are equipped to offer capacitors up to 33 kV, and Heavy Electricals (India) Ltd., Bhopal is manufacturing capacitors up to 220kV. The total licensed capacity for power factor improvements is 0.52 million kVAR per annum and the installed capacity is 0.39 million kVAR.

Special capacitors are required for use in electric locomotives and electric furnaces. The requirement of locomotive capacitors is met indigenously. Coupling capacitors are required for carrier systems on high voltage transmission lines. Heavy Electricals (India) Ltd. Bhopal and other manufacturers in the organised sector have undertaken the manufacture of these capacitors.

Captive voltage transformers are used for tapping low voltage supply from high voltage lines for instrumentation and for small power distribution, where it is economical to do so rathar than employ a distribution transformer. Heavy Electricals (India) Ltd. Bhopal manufactures these capacitors.

Electric Motors

The electric motor industry is now manufacturing motors to cater for a large variety of needs such as loom motors and ring frame motors for the textile industry, double and multiple speed motors for sugar centrifuges, flame proof motors for chemical and mining industries, high torque motors, geared motors and slipring motors for cranes and AC/DC traction motors for the railways and so on. Production of motors in 1970 was of the order of 3.19 million HP. Motors up to 1500 KW are now being manufactured in the country.

Cables and Wires

The types of cables now manufactured in the country are all aluminium conductors (AAC), aluminium conductors steel reinforced (ACSR), VIR and PVC cables including control cables etc. Paper insulated and PVC power cables, bare copper conductors, telephone cables and winding wires. Variety wise production in 1970 was : VIR and PVC cables 423,000 km; AAC and ACSR Conductors 65,000 tonnes; paper insulated power cables 2403 km; PVC power cables 14,000 km; winding and other wires 16,200 tonnes and bare copper conductors 740 tonnes.

Transmission Line Towers

With an installed capacity of 93,100 tonnes, production of transmission line towers amounted to 60,000 tonnes in 1970. Tower is not a standard product. Each project has its own specification on the basis of which the towers are designed. The Indian industry can now design and fabricate any type of transmission line towers.

Dynamograde Electrical steel sheets

The production of electrical steel sheet increased from 30,400 tonnes in 1969 to 31,050 tonnes in 1970. Besides the one unit under production, the Rourkela Plant of the Hindustan Steel Ltd., is also manufacturing this item.

Design Development

One of the special features of the heavy electricals industry is that the output is non-repetitive. Most of the items are either tailor-made or the manufacture is on the basis of small batch production. This necessitates among other things large design estiblishments. Most of the organised units have well established design units of their own.

The Heavy Electricals factory at Bhopal designed and developed a number of electrical equipment in 1970-71. Among these mention may be made of the 120 MW steam turbine the largest manufactured in India, the first 3000 hp reversing DC mill motor for an aluminium rolling mill, capacitors voltage transformers for use on 220 kv systems manufactured for the first time in the country, a 175 kw 1000 rpm class B insulated motor with aluminium wound stator and the first twin unit of the two large surface condensors for 120 mv sets. The factory has also developed and produced voltage regulators, which were being imported so far for use on the 1500 VDC electrical multiple unit coaches of India Railways.

Similarly many other electrical units have developed and manufactured equipment according to the demands of the customers.

Research

Research and testing facilities have also been developed in the country. Research Organisations like the Central Electronics Engineering Research Institute, Pilani are actively engaged in know-how development.

An electrical power research institute, the first of its kind in South-East Asia, has come into being in India with the commissioning of the switchgear testing and development station at Bhopal. The proposed low voltage switchgear laboratory at the Central Power Research Institute, Bangalore, is to be commissioned soon.

The Bhopal-Bangalore complex fulfils the need for a central organisation of applied research to resolve intricate problems, relation to generating, transmission and distribution of power confronted by supply undertakings and electrical manufacturing industries in the country.

The Bangalore unit of this complex functions in close technical collaboration with the Indian Institute of Science and the Bhopal unit with the Heavy Electricals Ltd. and the Research and Development Organisation for electrical industries in India, so that available facilities are pooled and utilised to the maximum advantage for all concerned.

The generator at Bhopal is of 1250 KVA capacity but there is already increasing demand for high voltage testing. The Government is considering proposals for expansion of the activities of the Bhopal station to enable it to undertake scientific testing of high-powered circuit breakers, investigations into the problem of high voltage AC/DC transmission and application of fuel cell techniques.

In confirmity with India's policy of passing on the benefits of science and technology to other developing countries, facilities available at the research centres and Bangalore and Bhopal will in due course be extended to its neighbours in South and South-East Asia.

Exports

Exports of electrical machinery and equipment are on the upswing for the last few years. In 1970-71 exports touched Rs. 44.68 million which was an 56 per cent increase as compared to 1969-70 exports at Rs. 28.65 million.

Induction motors and parts, transformers and parts, generators and parts, rotary generators, rectifiers, choke coils etc. contributed an earning of Rs. 26.53 million while the balance of Rs. 18.15 million was made up by the export of oil circuit breakers, motor starters, motor control gears, switch fuse units, relays, switch boards and control panels, switchgears, plugs, sockets, holders etc.

Of the total export of Rs. 6.67 million worth of induction motors up to 50 HP; Federal Republic of Germany accounted for the major portion with imports amounting to Rs. 4.78 million. The other important destinations were Sudan, Singapore, A.R.E. and Republic of Vietnam, while for the other types of electric motors valued at Rs. 4.15 million, the major foreign markets were A.R.E., Singapore. Federal Republic of Germany, Ceylon, Nigeria, Thailand and U.K.

For 5 K. V. 3000 KVA transformers, the export of which stood at Rs. 7.26 million the major markets were Malaysia (Rs. 1.20 million), Ceylon (Rs. 807,000) Sierra Leone (Rs. 700,000), A.R.E. (Rs. 498,000), Ceylon (Rs. 467,000), Sudan (Rs. 455,000) and Nigeria (Rs. 436,000). For other types of transformers the important customers were U.S.S.R., Ceylon, Malaysia, Burma and Sudan.

Exports of cables and wires stood at Rs. 113.2 million in 1970-71 as against Rs. 111.6 million in 1969-70 while transmission line towers and poles fetched an export earning of Rs. 28.7 million in 1970-71.

Of late the Indian Industry has secured a large number of overseas orders for supply of heavy electrical equipment.

A Rs. 100 million worth export order was secured from the National Electricity Board of Malaysia, by the High Pressure boiler plant of Bharat Heavy Electricals Ltd.

The order is for the supply of three oil-fired boilers, each having a capacity of 120 MW, with an output of 840,000 lbs. per hour and a superheat temperature of 1,000 degree Fahrenheit.

The boilers will be entirely designed, manufactured, erected and commissioned by the Tiruchi Plant.

The contract involves manufacture of over 10,000 tonnes of sophisticated equipment using special alloy and carbon steel material and is to be delivered according to a tight schedule.

The contract, one of the largest for the export of engineering goods, has been secured in the face of keen international competition, especially from Japan, which quoted an attractive price backed by low interest and deferred payment facilities of the Japanese Government.

Earlier, the Tiruchi plant had sucessfully executed orders for supply of 6000 and 930 Nos. high pressure valves to Poland and West Germany respectively. The plant has also received a sizeable order for erection and commissioning of 2 x 260 MV boilers for Tuanku Ja'afar power station in Malaysia. This order was on a turnkey contract basis at a total cost of Rs. 22.5 million.

The stage III of the Tuanku Ja'afar Power Station of Malaysia will be equipped with industrial motors made in India. Already the boilers for this power station are being supplied by India.

The Industrial motors to be supplied are being built at the factory of Heavy Electricals (India) Limited, Bhopal. The supply includes six nos. each 320 KW and 380 KW, 3.3 KV, 1000 rpm slipring induction motors and three nos. 11 KW, 415 volts, 1500 rpm Slipring Induction Motors. The factory has already in hand orders for the supply of motors for various Water Schemes in Malaysia.

The Bhopal factory had earlier secured a major export order for power transformers worth about Rs. 7.5 million from National Electricity Board of Malaysia. This order was claimed to be the largest of its kind

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ever placed on India and includes the biggest ratings of transformers, so far ordered export. The transformers to be supplied are not only designed and manufactured at Bhopal but will also be erected and commissioned at site in Malaysia by the Indian engineers.

Equipment already exported by the Bhopal factory include 11 KV switchgears to Iraq, Large Motors and Capacitors to the Arab Republic of Egypt and large Motors to Malaysia and Kuwait. Equipment under manufacture include 11,500 and 20,000 KVA Power Transformers for Malawi, 2500,1300 and several smaller HP Machines for Iraq and a complete nine circutit 33 KV Switchyard equipment for Malaysia. This is in addition to miscellaneous orders received from Uganda, Ceylon, Australia and other countries.

Earlier orders have been secured from Nigeria, Tanzania, Kuwait, Malaysia, Guyana, Trucial States and Uganda by another electrical machinery manufacturing unit in Tamilnadu.

Similarly cable manufacturing units individually and through the consortium of cable manufacturers have secured large international orders. In the case of transmission line towers one leading manufacturer in Bombay bagged four orders from Libya, USA, Iran, and Thailand. The total export orders now on hand with the firm add up to Rs. 280 million.

The long list of export supplies made by various manufacturers is indicative of the technical competence developed by the industry. □

Attention

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EXPORT PROSPECTS FOR HYDROCHLORIC ACID

Overseas demand for India-made hydrochloric acid has been on definite uptrend. The Arabian Gulf countries which are India's major customers for the acid are expected to step up their offtake substantially because of spurt in their oil drilling operations.

In 1970-71 the export value of the hydrochloric acid was over Rs. 3.7 million. Saudi Arabia absorbed nearly one-half of the total offtake. Dubai, Qatar, Muscat, Bahrein Islands and Kuwait were the other major customers.

M/s. Chemco Supply Corporation, Bombay account for the major overseas supplies of the acid from India. They have exported over 5950 tonnes valued at Rs. 5 million so far. They have on hand orders for another 2500 tonnes valued at Rs. 2 million, the supplies of which are expected to be completed shortly. The firm expects to cross the 8000 tonne-mark of the acid with an export earning of about Rs. 7 million.

The acid is shipped in polyethylene and lined steel drums and polyethylene carbuoys.

Aside from hydrochloric acid the Indian industry also exports chloro sulphuric acid, sulphuric acid and boric acid.

India's total exports of inorganic acids, oxygen compounds and non-metal metalloyds stood at Rs. 5.5 million in 1970-71. In the same year, the overall export value of inorganic chemical elements and oxides was as much as Rs. 19.72 million. The entire group of chemical elements and compounds fetched an export earning of Rs. 78.4 million in that year. Of the exports of chemical elements and compounds the share of organic chemicals was Rs. 33.11 million, the rest having emerged from inorganic chemicals.

Twenty eight units are currently engaged in the production of hydrochloric acid. Their installed capacity in 1970 was 75,468 tonnes and the actual production 54,490 tonnes. The quantum of production was in fact more in the preceding year at 85,840 tonnes.

The installed capacity of sulphuric acid was 1.9 million tonnes and production was 1.2 million tonnes in 1970. Nitric acid's capacity in the year was 30,700 tonnes while actual production was 16,850 tonnes. The capacity of phosphoric acid was 15,000 tonnes and production was 6,420 tonnes. The output of chlorosulphonic acid was over 9,290 tonnes while its capacity was 13,200 tonnes. At an installed capacity at 3000 tonnes, sulphonic acid's production in 1970 was 1,320 tonnes. The output of hydrofloric acid was 4,000 tonnes while the capacity was 4,500 tonnes in 1970.

AUTOMOBILE ANCILLARIES FOR EXPORT

Auto and auto parts made in India have been active in the export market particularly in the recent years. In 1970-71 the value of exports totalled Rs. 202.97 million while it was Rs. 135.14 million in the preceding year. A wide variety of automobile parts is avilable for export including chassis with engines, forklift trucks and parts, automobile engines and parts. In fact, the automobile parts group topped the list of engineering products exported by India in 1971-72.

A single firm M/s. Motor Industries Limited, Bangalore, affected exports worth more than Rs. 12 million in 1971. The firm has been awarded a gold medal by the Mysore State Export Promotion Advisory Board in recognition of their outstanding export performance in 1970-71.

The bulk of the firm's exports are directed to the Federal Republic of Germany. The other importing countries are the Arab Republic of Egypt, Singapore, Malaysia, Burma, Thailand, Hongkong, Sudan, Greece, Italy and Iran. The products exported by the firm include multi-cylinder and single cylinder fuel engine pumps, elements, delivery valves, nozzle and other components as also spark plugs. Fuel engines are also exported by them to West Germany. In addition to their direct exports, the company's products find their way abroad through exports of vehicles and stationary engines to more than thirty countries. The value of their indirect exports reached Rs. 3 million in 1970. They have developed particular expertise for design and manufacture of fuel engine components, exclusively for export markets.

A variety of automobile ancillaries are produced in India in sufficient quantities. They include nozzles, nozzle holders, elements, delivery valves, single and multi-cylinder pupms; oil, air and fuel filters, filter inserts, thin walled bearings, radiators, dynamos, starter motors, electric horns, dash board instruments, gaskets, wheels and rims, engine valves, oil seals, piston rings cylinder liners, piston shock absorbers, clutch facings, clutch assembly, brake linings; spark plugs, taxi meters, tie rod ends, propeller shafts, fly wheel ring gears, carburettors, wiper motors, wiper arms and blades.

EXPORT ORDERS FOR DETONATORS

India-made detonators and detonating fuses have been on the export stream. In 1970-71 over Rs. 0.74 million worth of detonators and parts were exported mainly to Singapore, Thailand, Philippines and Hongkong. Substantial supplies were effected to other countries including the U.S.A. and Iran earlier.

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Reciently Iran placed an order on M/s. Indian Detonators Limited (IDL) Hyderabad-18 for the supply of 1.5 million feet (375 cases) of detonating fuses. They have also placed a trial order for 20,000 numbers of detonators.

The firm received another order from Singapore recently for the supply of 2 million feet of Atla cord 50 feet (double coated rolled rayon type).

The Hyderabad firm have a capacity to manufacture 123 million detonators of all kinds every year. Additionally M/s. Indian Explosive Limited have a capacity for producing 40 million detonators per annum. The IDL also have a capacity to produce 20 million detonators fuses and 20 million meters of fuses.

JEEP VEHICLES IN EXPORT TRADE

International interest for India-made jeep vehicles is evident from a series of export orders placed by markets far and near, In the chain of orders recently received by the Indian Industry, those from Ceylon, Indonesia, Jordan and Yugoslavia are noteworthy.

M/s. Mahindra and Mahindra Ltd. Akurli Road, Kandivla (East), Bombay-67 secured orders for 250 jeeps from Jordan and 175 jeeps from Ceylon. Their jeep model CJ-5 has been exported to Indonesia in a completely knocked down condition and fitted on with body components made locally there. Yugoslavia has been the firm's largest customer with over 2000 vehicles operating in that market. So far 2700 jeep vehicles of the firm are plying to the world markets and it is expected that by the end of 1972, their vehicle population abroad would be 3500. They are currently negotiating to set up assembly projects in Malaysia, Ceylon and Sudan. During 1968, the firm's export earnings amounted to Rs. 35 million.

India's total exports of jeeps and land rover type vehicles during 1970-71 amounted to Rs. 19.73 million, of which Yugoslavia alone absorbed worth Rs. 18.76 million. Other buyers were Ceylon, Nepal, Nigeria and Sudan.

EXPORT TRADE IN GRAMOPHONE RECORDS

Over Rs. 4.3 million was secured by India through exports of gramophone records in 1970-71. Yugoslavia, Singapore, U.K., U.S.A., Trucial Oman, Ethiopia, Fiji, Guyana, Kenya, Malaysia and Trinidad were among the forty and odd countries that imported. In terms of quantity, about 0.8 million numbers were exported. Some overseas supplies of gramophones and tape recorders too were affected in the year.

International demand for Indian gramophone records continues to move up. A single exporter M/s. Gramophone Co. Ltd. 33, Jessore Road, Dum Dum, Calcutta have received more export orders recently. During 1971, their export sales were up by over Rs. 1 million or 22 per cent over the previous year. They have introduced in the export market some quantity of particular model of radiograms ('safari') for which repeat orders are expected.

The company has been recently allowed to expand manufacturing capacity of record playing instruments from 36000 units to 96000 units per annum. They have also proposals to manufacture stereo and compatible pick-up cartridges. Recently they have completed the installation of record manufacturing facilities in Maharashtra also, which is intended to meet the country's increasing export requirements.

EXPORT OF FEATURE FILMS

Indian feature films are popular more than ever in the export markets. In 1970-71 the export value of cinematographic films was Rs. 58.58 million of which the export earnings of feature films alone amounted to Rs. 53.16 million.

In 1971-72 Indian films continue to generate sufficient demand in the overseas markets. During the first nine months of the year (April - Dec., 1971) the export effort of M/s. Indian Motion Pictures Export Corporation, Shivsagar Estate, Worli, Bombay-18 alone is valued at Rs. 4.37 million.

(More details of India's export trade in films appeared in Vol. No. 1 issue No. 24)

EXPORT PERFORMANCE AND POTENTIAL

INDO-POLISH ECONOMIC COOPERATION

India and Poland have recently reached a comprehensive agreement covering trade, Economic and Technical Cooperation, and decided to set up an Indo-Polish Joint Commission to develop closer relations between the two countries.

The agreement forms part of a Protocol, first of its kind between the two conntries, signed by a visiting high level Polish delegation led by the Polish Deputy Prime Minister, Mr. John Mitrega and the Indian Government representatives.

The two countries have also agreed on setting up joint ventures in third countries in the field of chemicals.

In the Protocol, Poland agreed to assist India to develop her coal mines and re-structure coking coal mines some of which were recently taken over by the Government. It was agreed that Poland would supply and help in manufacture of coal mine machinery in India for exploiting non-ferrous metals like copper and zinc deposits by providing necessary technology and equipment. Poland would also collaborate with India in setting up lead and zinc smelter at Visakhapatnam,

Poland which has won world reputation in ship building would also help the Indian shipbuilding industry and study the possibility of supplying bulk carriers after 1976 under existing payment agreements. India requires 80,000 DWT bulk carriers and 60,000 DWT tankers.

The two sides considered the scope for Polish assistance for the Haldia fertiliser project in India. Poland agreed to buy from India railway wagons between 1972 and 1975. They would require 1000 two-wheel axle wagons, and 4000 four-wheel axle carrier wagons, it was stated.

The Polish delegation agreed to consider the possibility of providing technical assistance in setting up plants for shipping and marine engines in India and supply of certain types of megawatt power generating units between 1974 and 1980. They would also help set up central marine design centre in India.

It was agreed that there were further possibilities in increasing and diversifying the trade exchanges. The trade between the two countries which started in a modest way in 1953 is of the current order of Rs. 470 million. It is envisaged that the two way trade will be doubled by 1975.

INDO-HUNGARIAN TRADE

Envisaging a trade turnover of nearly Rs. 550 million during 1972, the representatives of the Governments of Hungary and India have recently signed a Trade Protocol.

Under the Protocol the principal items of India's exports to Hungary that were identified included railway wagons, mild steel tubes and fittings, medicinal and pharmaceutical products, textile machinery, builders' structurals, chemical products, types and tubes, cosmetics and toiletries, machine tools, automobile spares, ancillaries and accessories, wire ropes, asbestos concrete products such as tiles, pipes, etc. besides the traditional items such as de-oiled groundnut cake meal, tea, coffee, tanned and semi-tanned hides and skins, leather wootwear including chappals, finished leather and leather goods, jute manufactures, coir manufactures, cotton and woollen textiles, handicrafts and handloom products.

The main items of imports from Hungary will be steel and steel products, wheels, tyres and axles for rolling stock and other railway equipment, aluminium billets, rods and wire bars, laboratory and testing equipment, machine tools, dumpers and dumper components metal and non-metal material testing instruments for textile and other industries, micro-wave equipment, machinery components and raw materials for electric lamps industry, essential oils, drugs and medicines in bulk, fertilisers, nitrocellulose, caprolactum, equipment for the alumina industry etc.

Hungary has shown interest in new and non-traditional items and the 1972 Trade Protocol accordingly provides for increased scope for exports of non-traditional goods from India to Hungary and lesser exports of traditional goods.

It has been agreed that in order to bring about further expansion and diversification in the two-way trade exchanges, possibilities of commercial, industrial and technical coooperation need to be fully explored by identifying spheres where bilateral collaboration as also cooperatton in industrial and commercial spheres in third countries can be usefully undertaken.

In 1970-71, Indian exports to Hungary stood at Rs. 132.25 million as compared to Rs. 94 million in the preceding year. Indian imports from Hungary in the two years respectively were Rs. 149.5 million and Rs. 172.3 million.

PROSPECTS OF TRADE WITH WEST GERMANY

Machine tools. precision tools, hand tools, dies, bicycles and components, automobile components, electronic components, jigs and fixtures are the specific items mentioned by an Economic Delegation that had recently visited West Germany as having good scope for export from India.

Among the fields that were identified by the Delegation as having prospects of Indo-German collaboration in third countries are chemical plants, refineries, beet sugar plants, steel and metallurgical plants, power projects and transport and communication system.

INDIAN ASSISTANCE TO BANGLA DESH

The representatives of the Government of Bangla Desh and India have recently exchanged Letters of Agreement providing for India's assistance for the reconstruction of the economy of Bangla Desh and particularly to meet the more immediate needs of that country. A list has been prepared of commodities and services that could be supplied by India to the Government of Bangla Desh in the near future. The list includes petroleum crude and products, fertilizers, cotton, superfine yarn, sugar, salt, baby food, oilseeds, cement, steel and steel products, chemicals including drugs and medicines, power generation and transmission equipment and vehicles.

The total cost of the commodities and services to be provided is estimated at Rs. 250 million. These would be made available as a grant by the Indian Government.

With a view to making speedy supplies, petroleum and petroleum products would be supplied under the arrangements of the Indian Oil Corporation, fertilizers under the arrangements of Fertilizer Corporation of India and other commodities under the arrrangements of the State Trading Corporation of India.

A loan of £ 5 million to meet the immediate foreign currency requirements of Bangla Desh is also to be made. The loan would be repayable in 15 equal instalments commencing five years after the date of disbursement of the loan.

BENGAL DESHI COTTON EXPORTS PICK UP

There has been a welcome uptrend in India's export trade of Bengal deshi cotton, since Japan, the principal buyer, has now turned towards India as the original supplier of this type of cotton. Export estimates of Bengal deshi in the current season have been placed at about 137,450 bales as against the export limit of 200,000 bales for the year. In view of the encouraging trends in exports, it is expected that the limit would be reached shortly.

Export trade in Bengal deshi has been kept under restricted list and an annual export quota is prescribed by Government for export purposes.

ECONOMIC GROWTH AND INDUSTRIAL DIVERSIFICATION

PROGRESS OF RAILWAYS IN INDIA

From small beginnings over a hundred years ago, Indian Railways have grown into a mighty system of progressive stages of development. Sinewed by over 59,000 route kilometres of railways, Indian railways constitute Asia's largest and the world's fourth largest ystem. The Railways in India are running about 10,800 trains daily, serving over 7,000 railway stations and covering distances aggregating 1.3 million kilometres per day-equivalent to 32 times the journey round the earth at the Equator.

The Indian Railways carried nearly 200 million tonnes of freight in 1971. The principal factor in the growth of this traffic has been the movement of bulk commodities like coal, iron and other ores, steel, cement, foodgrains, fertilisers and petroleum products. About 90 per cent of the country's coal moves by rail. The steel industry depends entirely on rail transport for the movement of raw materials and finished products. Export traffic is largely rail-borne. Consumption of petroleum products in India has been constantly rising and a fleet of more than 25,000 special type tank wagon is in use for their transport.

At the dawn of independence, India inherited a railway system battered by World War II. Growing industrialisation during the Five Year Plans caused an additional strain on the transport capacity of the country. It was against this background that the Indian Railway launched upon a plan to rehabilitate and modernize their apparatus, equipment and expertise. An important step towards this direction was the setting up of three major Production Units by the Railways, viz. the Chittaranjan Locomotive Works (which initially produced steam locomotives and is now being utilised for the production of electric locomotives and diesel shunters), the Integral Coach Factory at Perambur, and the Diesel Locomotive Works at Varanasi. Besides, Railway also induced the development of wagon building industry.

Along with the modernisation of traction switching over from stream to dieselisation and electrification, the Indian Railways have put in service high capacity 4-axle wagon with a tare weight of 25 tonnes and carrying capacity of 55 to 65 tonnes, against the 22 tonnes capacity of conventional 2-axle wagons. These wagons are of a welded design and have much higher intensity of loading per foot thus enabling the running of heavier trains. In order to speed up the movement of heavy industrial and other freight traffic, Railways have also undertaken extensive track and signalling improvements and introduced Super Express goods trains on various trunk routes.

Indian Railway's efforts at indigenisation of their equipment have led to the development of many industries for the manufacture of intricate and sophisticated components. The stress on modernisation has broadened the industrial base of the country. The Railways imported as much as 30 per cent of its purchases in 1951-52, amounting to Rs. 970 million. The imported content of railway stores, has, however, been progressively reducd in order to save foreign exchange and dependence on imported items. While the total value of stores purchased in 1967-68 rose by 200 per cent to Rs. 3210 million, the foreign exchange content came down to only 13 per cent. There was further improvement in 1969-70 when Rs. 33,165 million worth of stores were purchased of which imported articles accounted for only six per cent.

India is now more or less self-sufficient in the manufacture of locomotives, passenger coaches, freight wagons of all types, train lighting, equipment, mechnical signalling, vaccum brake equipment, track materials and other allied items. The Indian Railways are also manufacturing diesel and electric locomotives.

At present, Diesel Locomotive Works. Varanasi, are manufacturing both Broad Gauge and Metre Gauge main line locomotives. Diesel Locomotive works produced 65 Broad Gauge and 40 Metre Gauge main line locomotives in the year 1971. The target capacity of 150 locomotives per year will be attained by the end of 1974.

Chittaranjan Locomotive Works manufactures Broad Gauge diesel haudralic shunting locomotives. It produces 42 Broad Gauge and 5 Narrow Gauge diesel shunting locomotives annually. The production of Board Gauge Diesel Shunting Locomotives in 1973-74 is likely to go up to 42. By then the Works will also turn out 5 Narrow Gauge Diesel Shunting Locomotives.

Chittaranjan Locomotive Works produced 55 electric locomotives during 1971. The capacity for the manufacture of electric locomotives in the Works is expected to increase to 150 locos per annum towards the end of the Fourth Plan.

At present, passenger coaches are being manufactured in the country by Integral Coach Factory, Perambur, Bharat Earthmovers Ltd. Bangalore, M/s. Jessop & Co., Calcutta and other Railway workshops. Integral Coach Factory at Madras is the biggest coach manufacturing unit in the world. Its annual production is about 700 coaches of all types, including Electric Multiple Units and Diesel Rail Cars. The factory is not only meeting the requirements of Indian Railways but is also exporting coaches to Taiwan, Burma and other Asian countries.

Only specialised or 'hard core' items continue to be imported like large-size crank-shaft diesel pistons and rings, spherical roller bearings, cardon shafts, traction gears and turbo-super charges. The manufacture of such items is neither easy nor economical as the techniques involved are of a special mature and the demand is comparatively smaller.

With a view to promote export of rolling stock manufactured in India, a non-official body called the "Rolling Stock Export Association", was set up in February, 1966. Besides wagon builders, the Integral Coach Factory, State Trading Corporation and Bharat Earth Movers Ltd. are represented on this Association. The Ministries of Railways and Commerce are also closely associated with it. The Association has been addressing communications to the Heads of the Railways in Africa, Middle-East and South East Asia, intimating the availability of surplus capacity in India, especially for steam loco components, for which traditional sources in Europe have dried up due to dieselisation and electrification. Some of the notable items which are already being exported are :—

i) Couplers, railway accessories, track materials, bolts and nuts, galvanised screw spikes, wooden sleepers and points and crossings to Iran.

ii) Railway track material & springs to Syria.

iii) Axle boxes, couplers and lead acid cells to Egypt.

iv) Fish plates and rail clips to New Zealand.

v) Couplers and overhead and under slung wagon sheets to Sudan.

vi) Draw bar hooks, screw couplings, shackle stones, shackles pins etc. to West Germany.

vii) Frog plates, gauge plates, switch plates, permanent way material and rail clips to Zambia.

viii) Rails to Argentina.

ix) Springs to Poland.

Through the agency of their Research, Design and Standards Organisation, Indian Railways have undertaken consultancy services in the field of Railway working in various countries like Iran, Thailand, Philippines, Iraq, Syria and Jordan.

The Railway Board has sponsored a number of delegations abroad, particularly to countries in Africa, Middle East and South East Asia,for market survey and export promotion.

Integral Coach Factory has secured two orders for the supply of bogies to Thailand and Taiwan. In addition, M/s. Jessop and Co. have also executed successfully an order for the supply of 33 coaches to Burma. Bogies fitted to these coaches were supplied by the Integral Coach Factory. Another order from Taiwan covers the supply of 113 coaches valued at Rs. 40 million. This order is under execution. First instalment of 22 coaches was shipped on 31st July, 1971 and the second instalment of 21 wagons was shipped in August. The execution of the order was completed on 15-10-71.

A number of orders have been secured by the industry from countries like South Korea, Yugoslavia, Hungary, Iran and Taiwan. A big break-through came when a large wagon order worth Rs. 76 million was secured from South Korea for the supply of 1050 wagons. Recently a big order from Yugoslavia for the supply of 3600 wagons valued at about Rs. 375 million has been secured. Two other substancial orders worth Rs. 83 million and Rs. 42 million have been secured from Hungary and Iran.

Indian Railway have thus not only acheived near self-sufficiency in the manufacture of rolling stock and equipment for their own use; they have also stimulated their manufacture by the industry, which has enabled the country to save as also earn valuable foreign exchange.

ONE MORE OIL REFINERY

The foundation stone for another oil refinery in India has been recently laid by the Prime Minister of India at Bongaigaon in Assam. This will be India's eleventh and Asia's third largest oil refinery.

With the availability of adequate quantity of suitable feedstock in the form of special cut naphtha from the proposed increase in refining capacity, it has been decided that an integrated DMT/Polyester fibre petrochemicals complex be also established alongwith he Bongaigaon refinery. This major refinery-cum-petrochemicals complex is estimated to cost about Rs. 1000 million. It will process a mixture of crude oil of M/s. Oil India from Nahorkatiya and Moranfields as also the crude made available from the Oil and Natural Gas Commission (ONGC) from Lakwa and Rudrasagar fields. The ONGC has confirmed that about one million tonne of Lakwa/Rudrasagar crude would be available for at least 15 years. Additional quantities of crude oil may eventually become available from the Galeki/Nazira fields of ONGC.

The processing scheme being proposed for the new refinery includes a distillation unit, re-run facilities for making special cut naphtha for the petro-chemicals complex, kerosene treating unit of the Edleanu type and sulphur dioxide manufacturing plant apart from the normal off-site facilities such as storage tanks, loading facilities, effluent treatment, workshops, laboratory etc.

The entire refinery will be designed and constructed in India with domestic talent and foreign exchange required mainly for some sophisticated equipment is not likely to be more than 10 to 12 per cent of the total investment.

The product pattern of the refinery would be special cut naphtha for petrochemicals 4.6 per cent; naphtha/Motor Gasoline 11 per cent; kerosene 11 per cent; light diesel oil 30 per cent; low sulphur heavy stock-39 per cent. The refining capacity of the refinery will be one million tonnes per annum.

It is expected that the refinery would come on stream in 1975. By 1975 Haldia refinery would be working on full stream, Cochin refinery at its expanded capacity of 3.5 million tonnes per annum and Baroda refinery at 3.4 million tones per year. The total refining capacity in India is about 20 million tonnes of which about 12 million tonnes is in the public sector. By the end of the Fourth Plan (1973-74) the refining capacity will increase to about 26 million tonnes.

Production of petroleum products has gone up about 80 times over the past 20 years in India–about 211,000 tonnes in 1950 to 17.18 million tonnes in 1970. The increased production has resulted in a sharp decline in India's import of petrochemical products from 2.94 million tonnes in 1950 to 0.97 million tonnes in 1970.

By the end of 1970 over 42.5 million tonnes of crude oil was produced. Over 131.5 million tonnes of crude is estimated to be still lying underground in the country.

Of the 11 oil refineries in the country, 5 are in the Public Sector at Koyali (Gujarat), Barauni (Bihar), Gauhati (Assam) and Haldia (under construction); the fifth is at Bongaigaon.

INDIAN SHIPPING
A RECORD OF ACHIEVEMENTS

India has secured a place of pride in the maritime nations of the world. Today it is the second largest ship owning country in Asia, the first being Japan. Although her place is 16th among the ship-owning countries of the world, among the developing countries she is perhaps one of the biggest ship-owning nations.

The Fourth Five Year plan's (1969-70 to 1973-74) shipping target is 4 million GRT of which 2.51 million GRT was already operative as at the end of 1971. It is estimated that during the remaining Fourth Plan period 0.23 million GRT is likely to be scrapped. Tonnage which is firmly on order is 1.17 million GRT. Tonnage yet to be ordered to achieve the Fourth Plan target is 0.55 million GRT. Shipping companies both in the private and public sectors have been in touch with several shipyards of the world and have mooted various proposals for acquisitioning of vessels. It is anticipated that by the end of the Fourth Plan the operative tonnage would be about 2.8 million GRT although orders would have to be placed to achieve the target of 4 million GRT.

The First Five Year Plan target of 0.6 million GRT and the second Plan target of 0.9 million GRT were all but achieved. The Third Plan target of 1.32 million GRT was not only achieved but exceeded by 0.13 million GRT.

India has been getting financial aid to buy vessels from countries like U.K. and Suppliers' Credit from Japan, Belgium, and West Germany. Recently a World Bank Team visited India and its assistance for for the Indian shipping has been sought for buying 4 Crude Carriers and a few Coasting Tankers.

According to a tentative estimate the tonnage in the Fifth Five Year Plan is likely to be stepped up to

5.8 or 6.00 million GRT. It is likely that orders will be placed during the Fourth Plan period for a select number of ships for about 0.800 million GRT as part of advance action for the Fifth Plan.

When the Indian tonnage reaches the Fourth Five Year Plan target of 4 million GRT, it will be able to carry 40 per cent of the country's overseas trade. This will go up to 50 per cent when the tonnage will be increased to at least about 6 million GRT, during the Fifth Plan period. Indian shipping has thus come of age and it is acquiring new dimensions.

INDIA LEADS WORLD'S GROUNDNUT PRODUCTION

With a production of 6.1 million tonnes, India emerged as the highest producer of groundnut in the world in 1970-71. India also leads the world in the area under groundnut cultivation–7.3 million hectares.

The production of oilseeds has gone up by 4 million tonnes over the last 20 years. During the same period the area under oilseed cultivation has increased by nearly 20 per cent. Uttar Pradesh, with over 25 per cent of the total oilseed production, leads the country. The area under oilseed cultivation is the highest in Gujarat. It also accounts for the highest yield of groundnut in the country–21.7 per cent.

OIL EXPLORATION FOR SELF-SUFFICIENCY

Consumption of petroleum products is increasing at a fast rate in India. Towards the end of this decade, the consumption is likely to double itself from the present annual demand of about 20 million tonnes. Substantial quantity of petroleum products continues to be imported mainly from Persian / Arabian Gulf countries. The heavy drain on foreign exchange due to the large import bill as also some recent developments have given a new emphasis to the task of oil exploration and an urgency to step up oil production. Lately, there is a definite trend towards higher oil prices in the world market due to the concerted pressure from the oil-producing countries. The Tehran Agreement of 1971 allows for progressive increase in the posted prices of crude oil. Further more, the world monetary reforms instituted in December 1971, particularly the dollar devaluation, are likely to become a tool for further upward revision of the posted prices. Added to all these is the country's paramount need to become more and more self-reliant in the wake of the developments arising out of the recent war.

Alive to all these problems, the Oil & Natural Gas Commission (O.N.G.C.) has set itself to the task of intensification of oil exploration both on-shore and off-shore. By a re-orientation of its exploration strategy, the Commission has concentrated its exploration efforts in areas where large oil and gas deposits are likely to be found even though the logistics may prove to be difficult and drilling may have to be done to great depths of 4,000 to 6,000 metres under high pressures and temperatures.

Accordingly, exploratory deep drilling would be undertaken by the Commission in such areas as Tripura, Jammu and Rajasthan. Seismic surveys using sophisticated digital equipment are being undertaken in West Bengal in order to locate suitable structures for resuming deep drilling in the Bengal Basin. At the same time, intensive exploration would continue in the oil-producing areas of Gujarat by the Commission and of Assam by both the Commission and Oil India Limited, for discovering new oilfields.

The results of seismic surveys with Soviet assistance in the Gulf of Cambay and other Shelf areas have clearly indicated that oil prospects exist in the offshore areas. The large structures that have been located in the Arabian Sea adjoining the Gulf of Cambay, such as Bombay High and Dahanu, may be indicative of large-scale accumulations of oil and gas. Such structures have not been seen in the on-land part of the Cambay Basin.

Going by world-wide experience, there should be several favourable factors to make offshore exploration, in India very worthwhile. World experience also indicates that oil may be found offshore but not in the adjacent on-shore areas; the reverse has not yet been demonstrated. For instance, large reserves of oil have been discovered in the Bass Straits, Australia, though wells drilled on-shore proved dry. The same thing happened in Western Australia, Nigeria, Angola, North

Sea and in certain other places. The geological reason for this is obvious. "Off-shore oil and gas is found and will be found almost entierly in the sediments that are young, sediments of tertiary age" (as in India's offshore areas).

In regard to offshore exploration the policy is to conduct exploration by "assisted owner operation" approach. In the case of shallow water drilling in the Gulf of Cambay, the Commissson obtained assistance from USSR to undertake drilling using a fixed platform. In regard to exploration of the deep water structures in the Bombay High area, a self-propelled jack-up platform is being built in Japan by Mitsubishi Corporation of Japan. Initial technical assistance and training for drilling would be provided by the offshore International SA (OISA) of USA.

The arrangements for Bombay High offshore drilling are only a beginning. Steps ought to be taken to explore other offshore areas. It is hoped that as a result of all these exploration efforts on-shore and offshore, the country would march forward towards maximum self-reliance in regard to its needs of petroleum.

ROLE OF PUBLIC SECTOR UNDERTAKINGS

The growth of public sector in India since the commencement of planning in 1951 has been rapid. From 5 units involving an investment of Rs. 290 million, it rose to 21 units with an investment of Rs. 810 million at the end of the First Plan, 48 units at an investment value of Rs. 9530 million at the end of the Second Plan, and 74 units involving Rs. 24,150 million at the end of Third Plan. At the beginning of the Fourth Plan (1969-70) there were 85 units with an investment of Rs. 39020 million. Since then the investment has gone up to Rs. 447,000 million as at the end of 1970-71.

Investment in the public sector projects is not guided merely by profit and most of the projects in this sector are such as have a comparatively long gestation period and result in relatively low returns in the initial stages. Even so, there is room for improvement in the working of many of the public sector undertakings. To utilise the capacity in the sector to the best possible manner, it has been decided to set up an action committee to review the working of selected projects. The working group is to find out ways and means for maximising production, minimising operation costs, improving industrial relations and stepping up research and development activities. The action committee is to function under the auspices of the Planning Commission.

One of the features of the new industrial policy outlined in the Fourth Plan is the identification of a set of industries classified as "core industries" which are of basic, critical and strategic importance to the economy. Of the total investment envisaged in the core sector, a little over three-fourths is in the public sector and the fulfilment of the programmes in the Fourth Plan and the investment therein are thus considerably dependent on the performance of the public sector.

FOREIGN AID'S SELF-LIQUIDATING PROMISE BELIED

When foreign aid was injceted into the Indian economy, the expectation was that the aid would prove to be self-liquidating. It was hoped that domestic savings as proportion of national income would go up eventually reducing the country's dependence on others for purposes of capital formation and that the rate of exports as a proportion of national income too would increases with the corresponding impact on the country's inherent ability to import material and skills from abroad. In over two decades of external assistance, these expectations have been belied.

During the past ten years there has been little increase in the economy's rate of savings. Exports as a proportion of national income have not risen proportionately. Thus the massive inflow of external aid has not helped towards self-reliance : *foreign aid has failed to end foreign aid.* Foreign aid has not merely brought in extra investible resources but along with it a milieu of habits and behaviour, the most striking among which has been the attitude towards consumption levels. Although there has been a steady increase in both aggregate national income and per capita income since 1950 as a result of inflow of foreign aid, the increase has not led to a corresponding rise in the rate of savings which, as a proportion of income remained more or less stagnant as at the beginning of the Five Year Plans.

More recent developments have highlighted the importance of cutting down foreign aid. While there is no question of dispensing with external resources, there is need for reducing external assistance. Whatever foreign goods and services are needed, they should be obtained through domestic resources and not throught the seeming charity of foreign Governments.

It does not apper difficult to arrange for such a realignment of the Indian economy as would eliminate the overt dependence on external aid. Through the domestic efforts spread over the past two decades, the economy has by now achieved a sophisticated and diversified industrial structure and is able to produce practically the entire range of industrial products. Capacity abounds in many direction. Import substitution cannot be effective in all spheres, and the country will have to be dependent on foreign economies for one or two crucial raw materials and spares but these gaps can be filled once the level of exports is raised. A high export surplus would provide the additional foreign exchange to pay for whatever raw materials are not available and have to be purchased from abroad.

A side from debt service obligations the net external assistance accruing to the country has been of the order of $ 300 million annually in the more recent years. Even this net accrual has had an illusory element in that it has been vitiated by unfavourable terms embodied in aid-tying. If the country is in a position to bid freely in the world markets for the package of goods that it obtained with this net aid, its actual outlay per annum will perhaps not exceed $ 200 million, or about Rs. 1500 million.

Provided the obligations from the past for serviceing debts are satisfactorily negotiated, the residual task for ensuring self-reliance would thus be well within the limits of feasibility. This can be achieved through maximum capacity utilisation, reduced distributive margins and rigid cost control as also through the development of indigenous based basic research; foreign collaboration has till now hampered indigenous efforts in this direction.

External aid under stringent economic and political conditions would be a different mater. It is doubtful, given the nature of the conditions that are imposed, whethar the compartive trading advantages between India and the aid giving countries are at all sustained in the end via such transactions. The content of the so-called "aid" more often than not, has a chemerio quality. It is time that less emphasis is placed on foreign aid in India's growth process.

(Based on a correspondent's news)

MANAGEMENT OF COKING COAL MINES

For management of all the coking coal mines and coke oven plants, a new company, namely Bharat Coking Coal Ltd. has been recently formed as the custodian of the mines and plants taken over by the Government of India. The company will have an authorised capital of Rs. 500 million with its registered office at Dhanbad (Bihar).

Under the Coking Coal Mines (Emergency Provisions) Act, 1971 the Government took over, effective from October 17, 1971, the management of 214 coking coal mines of which 211 are in Bihar and three in West Bengal. The production of coal under the new management has already shown a steady increase despite the initial difficulties as also the shortage of wagons. In September 1971 when the management of the mines was in private hands, the coal produced from these mines was one million tonnes. In the following three months it improved to 1.02 million tonnes, 1.08 million tonnes and 1.19 million tonnes respectively.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL PROGRESS

PROGRESS IN MINING RESEARCH

The Central Mining Research Station (CMRS) Dhanbad investigated 77 research projects and work on 15 projects has been completed during 1970-71. The research projects include mine technology, safety, mine engineering, health, and air pollution.

The main technology group conducted a strata control survey in a colliery where an experiment in respect of working a thick seam without stowing in slices with artificial roofing was tried for the first time in the country. Roof bolting anchorage investigations were also conducted successfully. Investigations into the use of coal mining for sand stowing in mines were conducted.

In the field of mine safety, several electrical equipment were investigated and tested. Samples off dust-tight/dust-proof lighting fittings were also tested. An indigenous safety cap lamp was subjected to hot filament ignition and intrinsic safety tests and was found suitable for use in the pentane class of atmoshpheres.

Studies on gas emission problems were conducted as also tests on 'non-ionic detergent' samples for evaluating the optimum concentration that may be suitably employed for coal dust suppression. Studies on the self-heating characteristics of different coals were also carried out. Besides the above the CMRS conducted ventilation surveys. In the field of mine engineering several indigenous wire rope samples were investigated and tested. An automatic lubricator for winding were ropes was designed and developed. Also samples shackle pins, cage shackle, cage chains, safety hooks, corner chains, how shackles, distribution plates, safety chains, suspension gears, bell boxes and so on were examined.

The mine health group studied dust problem and samples on sodalime were tested and reported for use in self-contained breathing apparatuses. The mine air pollution group examined electron micrographs of lung dust and air-borne dust in a coal mine under electron microscopes. Air borne dust surveys were conducted in coal and gold mines as well as sulphuric acid and cement plants.

IRON POWDER FROM MILL SCALE BY DIRECT REDUCTION TECHNIQUE

Iron powder is normally produced from millscale by thermal reduction at high temperature with reducing gases like hydrogen or hydrocarbons or a mixture of both. The Central Electrochemical Research Institute, Karaikudi has developed a method wherein millscale is reduced directly by keeping it as a sediment in alkaline electrolyte on a suitable cathode substrate. The insoluble anode is kept immersed in the free electrolyte about the sediment of the oxide. Work has been carried out up to 100 ampere cell processing 4 kg. of millscale per batch at a current density of 10 amp/dm^2 based on the area of the substrate with an average current efficiency of 80.90 per cent. The process is covered by a patent.

Iron powder finds use in number of applications like production of welding electrodes, flames cutting, sintered metal components and in the manufacture of certain chemicals.

MANUFACTURE OF PHENACETIN

A DRUG

National Chemical Laboratory, Poona, has developed know-how for the manufacture of phenacetin, a drug used as an analgestic and antipyrotic agent.

The process developed by NCL, consists in reacting p-phenetidine and acetic acid in liquid phase under atmospheric pressure. The unreacted phenetidine is completely reacted using acetic anhydride. From the product, excess of acetic acid, unreacted p-phenetidine and retainer (used to remove water) are removed by distillation under vacuum. Phenacetin is treated with charcoal and recrystallised. Work has been carried out at 60 kg/batch scale.

AN AUTOMATIC FLUSHING CISTERN

The Central Building Research Institute, Roorkee has developed a new fitting for automatic flushing cistern for urinals. The fitting gives same efficiency as that of copper fitting being used at present. It has the advantage that the material used is indigenous and saves 80 per cent of the cost of copper fitting. The manufacture of the fitting does not require any skilled labour or special machinery and can be easily taken up by any small manufacturing industry.

COPPER PLATING ON STAINLESS STEEL

The Central Electro-Chemical Research Institute, Karaikudi, has developed a process which envisages the direct plating of copper on stainless steel from an acidic copper chloride bath followed by a copper build up from conventionl acid copper sulphate bath.

The conventional method of plating copper on stainless steel is to give a nickel strike from Wood's nickel bath. The process, however, involves use of nickel anode and nickel salts, which are costly. The direct plating of copper on stainless steel eliminates the use of nickel coating between substrate and thick copper coating.

M.S. tank, M.S. tank PVC lined, copper bush bars and clamps, heaters, rectifiers, air compressor, buffing wheel, grinding wheel, filter unit are the main items of plant and machinery needed in the process developed by the Karaikudi Institute. Sodium hydroxide, sodium carbonate, hydrochloric acid, cupric chloride, sulphuric acid, copper sulphate, nitric acid, anodes, paraffin wax are the various raw materials required. All are available indigenously. Copper plating on stainless steel utensils is advantageous as these utensils are otherwise poor thermal conductors of heat and lose appreciable amount of heat by radiation.

ELECTRIC SHOCK CONTROL

A compact device has been developed which when installed at the main will protect a person who may come into contact with the live wire. This device prevents electric shock by reducing the time of flow of current through the body. If this device is installed at the mains of a single phase supply, as soon as a person happens to touch the live wire, the device will put off the main supply instantaneously. The supply can be restored by a simple switch provided in the equipment. Mr. A. J. Stephen of Tiruchirapalli has developed the device.

The device, quite simple in operation, is extremely useful for households as well as small workshops where repairing etc. of electric appliances is undertaken. The device is being marketed by the inventor in collaboration with a manufacturer of Calcutta.

MARINE PRODUCTS

India's ocean area of nearly 285,000 sq. km. stretching along the coastline of over 5,000 km abound in important commercial varieties of fish. India is seventh among the fish producing countries of the world. The marine fish landings in India rose from half a million tonnes in 1951 to about a million tonnes in 1969 consisting of 226,700 tonnes of sardines, 107,600 tonnes of prawns, 91,900 tonnes of mackerel, 76,300 tonnes of Bombay duck, 24,100 tonnes of pomfrets and 385,300 tonnes of other varieties. India accounts at present for about 40 per cent of the total actual production of the Indian ocean.

Marine life which is grouped under the name of crustaceans, with prawn or shrimp at the head of the list, form about 13 per cent of the total yield in the Indian ocean. Annual landings in India come to about 34 per cent of the Indian ocean yield, consisting mostly of shrimps. Pelagic fish, among which sardine is the most prominent, contribute 28 per cent of the total catch in Indian ocean. India accounst for 50 per cent of it. The peculiarity about sardine is its unpredectability as a resource. Landings over the years have been varying from one per cent to 33 per cent. The Central Marine Fisheries Research Institute is now engaged in determining the factors which bring about fluctuations so as to eventually forecast the presence of the fishery fileds and their possible yields. From productivity studies it has been assessed that the potential yield of pelagic fisheries in the west coast alone will be over a million tonnes a year.

Bombelli or Bombay Duck with an average landing of about 80,000 tonnes annually form the third largest fishery in India.

Another promising field of oceanic fisheries of India is that of the tuna group. This forms about a tenth of the total yield from the Indian ocean. India's share in the catch is however limited to around 3800 tonnes.

Besides these varieties, the Indian landing includes such other types as eels, pomfrets, seers, salmons, hilsa, lobsters, jewfishes, sharks, ribbon fish, silver belly etc.

The Indian ocean fishery resources have been estimated to be around 13 million tonnes per annum. However, landings in India is only a small partion of the total potential.

Marine fishing in India has for the most part been restricted to close inshore regions and to a limited extent to the slightly offshore areas. The investigations on marine fish resources in India have been based on four zonal classifications of resources viz. the resources of inshore fishing grounds, resources of offshore fishing grounds, resources of the deep sea fishing grounds, and resources of the oceanic fishing grounds.

The inshore area is the traditional fishing zone along the coast up to 25 metres depth. This is the zone which is exploited by all the indigenous boats and gear and by most of the recently introduced powered vessels. Almost the entire marine fish catch of India comes from this zone. The fishery in this area is mostly composed of pelagic species like sardines, mackeral and lesser sardines and bottom species like Bombay Duck and silver bellies and shrimps and other crustaceans. It is the considered opinion of fishery biologists that most of the fisheries available in this zone in India is exploited to the maximum and even in case of pelagic fisheries like those of oil sardine and mackerel, no substantial increase can be made in production by increasing the fishing effort unless the area of fishing is extended farther. Naturally the investigations of the resources beyond this traditional fishing zone are of great importance to India's development in fishing.

Development Programmes

Survey and exploration of the sea bed has been a continuous feature in India's efforts to develop marine fishing. In addition to locating shallow water shrimp all along the coastal belt, India's exploratory vessels have recently located resources of deep sea shrimp and lobsters in depths between 100 and 150 fathoms. Besides, areas with abundance of eels, perches and skip jack tuna are being defined and potential determined. Pelagic resources like sardine and mackerel, which contribute substantially to the inshore fish landings are suspected to occur in large quantities in the offshore and deep sea regions. A survey scheme is being undertaken to make a quantitative assessment of these fishes.

The obvious potential in shrimp and lobster, the emerging scope for expansion of the pelagic fishery sardines and mackerel and possibily tuna-the rising demand in the internal market, and the indications of large untapped marine resources have spurred the country to increasing efforts in the exploitation of the resources of the Indian Ocean.

The strategy adopted for the development of marine fisheries in India has been to promote and strengthen the various sectors of the Industry so as to encourage self-sufficiency. Responsibility for provision of the infra-structure has been assumed by the Government. Governmental outlays have been increased from Rs. 230 million in the Third Plan (1961-66) to over Rs. 860 million in the Fourth Plan (1969-74).

Deep sea fishing has been accepted as a priority industry and is one of the industries where foreign collaboration is encourged. Already a project with Norwegian assistance is in operation in the South-West sector and systematic attempts to investigate the availability of fish beyond 100 metres depth in Indian waters are being made.

Infrastructure

The country today has a fleet of about 8,000 mechanised boats and thousands of country crafts. This fleet operate solely in inshore and near shore waters. The fleet of fishing trawlers is now small but efforts are being made to increase the number of medium and large size trawlers in order to tap India's deep sea and offshore fishery resources. Steps are also taken to provide landing and berthing facilities for fishing vessels in some of the major ports and in other centres. The fishing harbours will provide repair and docking facilities.

It has been estimated that 5500 mechanised boats will be introduced in the course of the Fourth Plan period. The majority of these boats will be engaged in trawling for shrimp. The additional landings of fish and shrimp are expected to be increased by 275,000 tonnes of which 20 to 30 per cent will consist of exportable varieties of shrimp. Survey of the resources of shrimp has indicated that this increase in fishing effort is not likely to affect the stock position of shrimps. For off-shore fishing, introduction of 300 vessels is contemplated. Most of them will be engaged in both-shrimp trawling and capture of other fish depending on the season of operation. These vessels are expected to bring in additional landings of 150,000 tonnes of which 20 to 30 per cent will consist of shrimps and lobsters.

A wide range of marine equipment like marine diesel engines, deck equipment including trawl winches, gurdies, line haulers, fishing floats and steel wire ropes are now indigenously produced in the country. Efforts are under way to expand and diversify marine equipment production to include items like fish finders, echo sounders and radio telephone and radar equipment, within the country.

Research on fishing gear, which is being undertaken on a continuing basis by various institutions connected with fisheries development, has considerably increased the fish landings, per hour catch and extended the area of fishing operations. Night fishing for shrimp, which has yielded striking results in other maritime countries, is now being experimented in India.

Processing

Switching over from sun-drying and salt curing of fish, the industry in India is now adopting modern methods of processing. Freezedrying is gaining status as a recognised commercial food processing technique for specialised demand. Sardine in oil, tuna in oil and shrimp in brine are the main varieties that are canned now.

In the case of shrimp/prawn India is one of the leading processing countries. Great care is taken for freezing and cold storage of shrimp under optimum conditions. Careful freezing and storage prevents or reduces loss of weight, desiccation, development of rancidity, loss of colour, aroma and adverse changes in texture. Wide fluctuations during frozen storage are kept to minimum to prevent any adverse effect on the quality of shrimp. In recent years attention is being paid to the production of individually quick frozen (IQF) prawns/shrimps. The various technical problems in the production of IQF varieties have been solved and the necessary equipment and other facilities required are being assembled. It is hoped that in the coming years IQF prawns/shrimps will form an important part of frozen variety exported from the country. A majority of the processing plants in India today are well equipped to put up consumer packs to suit the requirement of the super markets abroad. The packaging material industry is also gearing up to meet the growing needs of the marine product processing industry.

Research

Several new research schemes for development of fisheries have been taken up.

The research will identify the factors limiting the fish catch, utilisation of trash fish, conduct studies on ecology and fisheries of fresh water reservoirs and ascertain the culture of Indian and exotic fishes. The programmes will be carried out at several fish farms, fish technological institutes, and marine product processing centres and universities of veterinary sciences.

The research programmes, envisaged under the project, would enable the scientists to exchange information on improving the quality of fish, suggest measures for stepping up domestic consumption and facilitate greater export of fish.

Quality Control

Compulsory pre-shipment inspection of canned and frozen prawns was introduced in 1965 followed by inspection scheme for frozen froglegs in 1966. For the purpose of inspection, well defined quality specifications, both organoleptic and bacteriological have been prescribed. The nature of inspection is being intensified and expanded to cover the various activities connected with processing of marine products. It is also proposed to lay down and enforce norms and standards for inplant inspection to fish products.

Exports

Marine products industry is one the industries which have maintained a steady growth over the past few years. Exports which were only 15,300 tonnes at Rs. 70.6 million in 1965-66 improved to 26,800 tonnes at Rs. 247 million in 1968-69. Registering further increase, overseas supplies touched 31,700 tonnes valued at Rs. 334.6 million in 1969-70. The 1970-71 export supplies of 35,883 tonnes amounting to Rs. 350.7 million was a 13.21 per cent growth in terms of quantity and about 4.83 per cent in terms of value over the exports of 1969-70.

The exports in the first six months of the current year (April-September 1971) was of the order of 16,174 tonnes valued at Rs. 175.9 million. In terms of value there was increase of Rs. 1 million as compared to the corresponding period of 1970-71 even though in terms of quantity there was a fall of about 152 tonnes.

Frozen prawns earned as much as Rs. 138.5 million in the first half of the year while their export value was only Rs. 127.9 million in the corresponding period of the preceding year. The export of canned and dried prawns however registered some decline from Rs. 23.5 million to Rs. 18 million in comparable periods. There was an increase in all other important varieties of marine products exported.

R. N. 21723/71

The export target of marine products has been fixed at Rs. 390 million for 1971-72.

Though almost 80 per cent of the exports is accounted for by frozen and canned shrimp, India offers for export a wide spectrum of marine products including canned lobster tails, canned fish, dried prawns, shark fins, fish maws, prawn bits, shirmp powder, fish pickles, prawn pickles, fish oil, cuttle fish bones, beach-de-mer, sea shells, tortoise shells, aquarium fish, aquarium plant, tortoise meat, turtle meat, saw fish snouts, fish manure, white squills, saw fish beaks, fish meal, living tortoise and tortoise belly.

Marine products of India are mainly directed to U.S.A., Japan, U.K., Australia, France, Singapore, Hong Kong, Federal Republic of Germany, Belgium and Netherlands.

The marine products industry has been identified as one of the growth points having maximum export potential. The need is obvious for scientific exploitation of the potential and for designing appropriate measures to extend the country's deep sea fishing as also organisation of adequate facilities for processing the catch. With this end in view it has been proposed to set up a Marine Products Export Development Authority with an emphasis to increase the availability of raw material especially shirmp and other products by encouraging deep sea fishing.

To ensure that Indian exporters realise maximum export sales, certain varieties of marine products have been brought under Export Trade Contral effective from April 1, 1970. Their exports are now allowed only at pre-fixed prices and no consignment sale is thus permitted. □

Attention

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EXPORT TRADE IN CABLES AND WIRES

Export of Cables and wires from India has been going up year after year from Rs. 16.77 million in 1967-68 to Rs. 113.19 million in 1970-71. In 1969-70 exports stood at Rs. 111.60 million. Major categories exported were bare copper conductors, AAC/ACSR conductors, insulted cables and wires and cable joint boxes. Interestingly cables and wires occupied the second position after automobile and auto parts among the engineering items exported from the country.

One of the exporting firms M/s. Industrial Cables (India) Ltd., Industrial, Area Rajpura (Punjab) has earned Rs. 13.15 million in 1970-71 through overseas supplies of cables and wires. In 1969-70 the firm's exports stood at Rs. 9.21 million. Two orders from U.S.S.R. has also been received by the firm for a total value of Rs. 23.36 million.

The production range of this unit includes all types of paper insulated lead sheathed power and control cables upto 33 kv, AAC and ACSR conductors, power factor improvement capacitors etc.

Another exporting firm M/s. Indian Cable Co. Ltd., 9, Hare Street, Calcutta has within a period of five years exported cables and wires worth Rs. 30 million to nearly 29 overseas markets. The production and export stream of the Calcutta firm has such items as paper insulated power cables, cadmium copper wires, strands and strips, bare wires, ball wires, winding wires and strips, PVC cables and flexibles, cable accessories, fuse wires, enamelled copper wires etc.

The cable industry in India has developed itself into a well established, diversified and broad based complex. The present installed capacity for various types of cables and wires is : AAC and ACSR conductors 100,420 tonnes, bare copper conductors, 36,720 tonnes, PILC power cables 9,560 km, PVC power cables 20,000 km, winding wires and strips 32,000 tonnes and PVC and VIR cables and flexibles 910 core/million metres.

OVERSEAS DEMAND FOR WIRE ROPES

The wire rope industry has a notable contribution to the export sector. From Rs. 9 million in 1968-69 exports has been stepped up to a level of Rs. 17.60 million in 1970-71. During April - July 1971 India exported Rs. 6.50 million worth of wire ropes. Bulgaria, Yugoslavia, Thailand, Hong Kong, Malaysia, Singapore and U.S.S.R. are the major markets for Indian wire ropes.

The growing overseas demand for wire ropes is evident from a recent order worth Rs. 1.5 million received from the Democratic Republic of Korea for this item. The order is to be executed by M/s. Mohatta and Heckel Ltd., Mustafa Building, Sir P.M. Road, Bombay. The firm has on hand export orders from Bulgaria, U.S.S.R., Yugoslavia and Poland. The Yugoslavian order is for Rs. 1.73 million worth of supplies and the entire order is to be completed in the current year.

The wire rope industry with an installed capacity of 36,240 tonnes had an output of 19,261 tonnes in 1970 and 18,191 tonnes in 1969.

EXPORT OF PAINTS

India's overseas supplies of pigments, paints, varnishes and related raw materials is on a rising trend. From Rs. 23.7 million in 1969-70 exports rose to Rs. 45 million in the following year. In the first four months of 1971-72 (April-July 1971) Indian exports of paints, varnishes etc. amounted to Rs. 10.47 million.

A wide variety of prepared paints, enamels, lacquers, varnishes and artist's colours are on the export stream. Their export value alone was as much as Rs. 41 million in 1970-71.

EXPORT ORDERS FOR CASTINGS

Iron and steel castings, which have gained export popularity, earned through overseas supplies an amount of Rs. 45.34 million in 1970-71. This performance was about a 54 per cent increase when compared to 1969-70, the exports in that year being Rs. 29.39 million.

Two exporting firms have orders on hand worth Rs. 9.31 million for supply of iron and steel castings to ARE and Iran. M/s. Bharat Electric Steel Co. Ltd., Calcutta are to supply 738 number of couplers to ARE and the value of the order is Rs. 1.56 million. The order from Iran for castings worth Rs. 7.75 is placed with M/s. Kumund Iron and Steel Ltd., Bombay. Supplies in respect of both the orders are to be completed in the current year.

There are at present 43 commercial steel foundries engaged in the production of steel castings with a total installed capacity of 129,000 tonnes per year. The industry is equipped to manufacture heavy weight castings up to 40 tonne piece weight. Besides this there are a number of units which have a captive capacity.

There are 13 units manufacturing S.G. Iron castings with an installed capacity of 8,800, tonnes per annum. Production capacity for malleable iron castings is around 22,300 tonnes with 14 units in the line.

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A large order has been booked from the Soviet Union by a paint manufacturing unit for some of its products. Nearly 250,000 litres of synthetic enemel and 10,000 litres of nitro cellulose lacquers will be shipped to that country by M/s. Jenson and Nicholson (India) Ltd., 225 Acharya Jagdish Bose Road, Calcutta.

In the organised sector of the paints industry there are presently 18 units with a licensed/ installed capacity of 86,000 tonnes per annum. Additional capacity is being planned. Actual production in 1970 was of the order of 65,200 tonnes in case of paints, enamels and varnishes and 3636 tonnes in respect of wire enamels and impregnating varnishes.

TWO MORE JOINT VENTURES ABROAD

To the long list of joint industrial ventures coming up abroad with Indian assistance two more are being added.

The ventures approved are for a steel pipes unit in Indonesia and a woollen garments manufacturing unit in Mauritius.

The steel pipes units in Indonesia is to be set up with the collaboration of M/s. Zenith Steel Pipes Ltd., 95, Church Gate Reclamation, Bombay–20. The Indonesian unit will have a production capacity of 12,000 tonnes of pipes. The Mauritiun unit for the manufacture of woollen garments will come up with the assistance of M/s. Raymond Woollen Mills Ltd., J. K. Building, Dougall Road, Bombay. The unit will be in the Free Trade Zone in Mauritius.

The equity participation in these joint ventures will be by way of export of Indian machinery and equipment.

In Mauritius Indian assistance is already extended to the establishment of six industrial units for mosaic tiles and rolling shutters, rubber manufactures, cement plant, textiles (two projects) and canning. Additionally a hotel project is also coming up with Indian collaboration.

(More details published in Vol. I No. 28 dated December 11,1971).

AWARDS FOR EXPORTERS

Selections have been made for nine Awards and twentyeight Certificates of Merit for outstanding export performance during the period April 1968 to March 1969.

The nine Award winners for outstanding export performance are : M/s. Bombay Dyeing and Manufacturing Co. Ltd., Bombay. The All India Handloom Fabrics' Marketing Cooperative Society Ltd., Madras, M/s. Hindustan Steel Ltd., Ranchi, M/s. T. I. Cycles of India, Madras, M/s. Hindustan Aluminium Corporation Ltd., Calcutta, M/s. Bhor Industries Pvt. Ltd., Bombay, M/s. Mahendra Brothers, Bombay, The Engineering Export Promotion Council, Calcutta and M/s. Tata Exports Ltd., Bombay.

The twentyeight winners of Certificates of Merit are : M/s. P. Mittulaul Lalah & Sons, Madras, M/s. Peirce Leslie India Ltd., Calicut (Kerala), M/s. Angelo Brothers Ltd., Calcutta, M/s. Oceanic Products Exporting Co., Quilon, M/s. C. M. Rajgarhia, P. O. Giridih, Bihar, M/s. Keshavlal Talakchand (Pvt.) Ltd.. Bombay, M/s. Banaras Art House (Pvt.) Ltd., New Delhi, M/s. Chemicals and Fibres of India Ltd., Bombay, M/s. Hind Hosiery Mills, Ludhiana, M/s. Mahindra and Mahindra Ltd., Calcutta, M/s. R.S. Iron Industries Pvt. Ltd., Calcutta, M/s. Indian Tube Company Ltd., Calcutta, M/s. Gedore Tools (India) Pvt. Ltd., New Delhi, M/s. Chemco Supply Corporation, Bombay, M/s. Madras Rubber Factory Ltd., Madras, M/s. Balkrishna Pen Pvt. Ltd., Bombay, M/s. Montex Corporation, Bombay, M/s. India Linoleums Ltd., Calcutta, M/s. India Cements Ltd., Madras, M/s. R. Y. Durlabji, Jaipur, M/s. Simac Group (India) Pvt. Ltd., Gandhidham, Kutch, M/s. Indian Telephone Industries Ltd., Bangalore, M/s. Cadbury Fry (India) Pvt. Ltd., Bombay, The Plastics and Linoleums Export Promotion Council, Bombay, M/s. Hero Cycle Indusries, Ludhiana, M/s. Metro Exporters (Pvt.) Ltd., Bombay, M/s. Swastik Rubber Products Ltd., Poona and M/s. Dunlop Rubber India Ltd., Calcutta.

The Government of India have instituted the scheme for grant of Awards and Certificates of Merit by way of public recognition of outsanding export performance. The first set of Awards and Certificates of Merit was given in 1969 in recognition of export achievements during the period October 1966 to March 1968.

CIGARETTES TO WORLD MARKETS

Export of tobacco manufactures at Rs. 11.64 million registered an increase of over 80 per cent in 1970-71 as compared to 1969-70 export value of Rs. 6.46 million.

Export of cigarettes alone had a eleven fold increase. From Rs. 267,000 in 1969-70 cigarette exports went up to Rs. 2.99 million in 1970-71. Of this USSR accounted for Rs. 2.90 million.

This rising trend is reflected in the current year's (1971-72) exports also. Tobacco manufactures earned as much as Rs. 13.87 million during April-July 1971 as compared to Rs. 2.57 million during the corresponding period of 1970. Cigarettes accounted for Rs. 9.39 million in April-July 1971. U.S.S.R. has emerged as the largest importer with an intake worth of Rs. 9.29 million.

The growing demand for Indian cigarettes in U.S.S.R. is fully reflected by a recent order for 235 million cigarettes at a value of Rs. 5 million placed on M/s. Indian Tobacco Co., Virginia House, 37, Chowringee, Calcutta 16. Earlier the firm had secured a bulk order of a value of Rs. 10 million from USSR for supply of cigarettes. In addition to the two export orders, the company is also to supply Rs. 550,000 worth of cigarettes to Hungary, the order for which was secured in December 1971.

With a total licensed capacity for the production of 61,220 million pieces, India's cigarette production was of the order of 62,170 million pieces in 1970. There has been a gradual improvement in the output year after year-from 22,830 million in 1955 to 54,033 million pieces in 1965.

CATTLE FEED TO POLAND

India exported 11,766 tonnes of compound animal feed at a value of Rs. 7.43 million in 1970-71. Poland was the major buyer with an offtake of 11,074 tonnes at Rs. 7.01 million. South Yeman Republic accounted for 319 tonnes at a value of Rs. 203,000. The other countries which imported cattle feed in smaller quantities were Bahrain, Dubai, Japan, Muscat, Netherlands, Qatar, Singapore and U. K.

A recent order received from Poland is for 1000 tonnes of compound cattle feed valued at Rs. 650,000. The order has been secured by the Gujarat Agro Industries Corporation. The first consignment of 500 tonnes has already been shipped a few days ago. The Corporation is having a cattle feed factory at Khanderi near Rajkot.

The Corporation expects to get sizeable export orders from Poland during the current year and negotiations are to be started shortly.

INDIAN GARMENTS TO U.S.A.

Sample orders worth US $ 60,000 have been placed by Macy, one of the largest department stores in the U.S.A. on the basis of some samples which its marketing experts collected from various manufacturers of ready-made garments during their recent study tour in India.

Satisfied with the outcome of the above study tour, Macy has now decided to send a team of ready-to-wear buyers sometime in early February 1972. This will be followed by the visit of a Home-furnishing Coordinator at the end of February 1972.

The study tour was under the product adaptation project initiated by the Trade Development Authority with the active support of the UNIDO. The UNIDO had secured the services of four experts from Macy to work on the project. The team of experts visited over sixty firms in the ready-made garments and home-furnishing industry and were given counter samples for detailed examination.

ENGINEERING GOODS FOR EXPORT

Gujarat Export Corporation Limited has exported goods worth Rs. 4 million during the course of the last 10 months. The goods comprise of diesel engines, lathes, radial drilling machines, pillar drilling machines, pipe fittings, sluice valves, bicycle accessories, processed food, chemicals, leather goods, handicraft, etc. These goods have been exported to U.S.A., U.K., Germany, France, Australia, New Zealand, Africa, Saudi Arabia, Iran, Iraq and others.

CASHEW EXPORTS ON UPTREND

Export of Indian cashew kernels during 1971 amounted to 59,624 tonnes registering an increase of ten per cent. over the previous years's exports which was 54,070 tonnes. In terms of value the 1971 export was higher at Rs. 604.6 million as against Rs. 558.2 million in 1970.

Better results in 1971 were possible due to cashew exports picking up in August and subsequent months.

U. S. A. accounting for 28,903 tonnes remained the biggest consumer of cashew with an intake of 48.5 per cent of the exports closely followed by U. S. S. R. with 16,692 tonnes representing 28 per cent. Canada, German Democratic Republic, U. K., Japan, Australia, Hong Kong, Netherlands, Federal Republic of Germany and Czechoslovakia were the other improtant buyers during the year.

Exports of Cashew shell liquid in 1971 amounted to 5,897 tonnes valued at Rs. 6.73 million. U. K. and Japan were the major buyers of this item.

WOOL AND WOOLLENS
EXPORTS IMPROVE

Exports of wool and woollens during April-Dec., 1971 have increased to Rs. 235.4 million from Rs. 225 million in the comparable period of the previous year. The uptrend in exports was mainly in respect of woollen worsted and mixed fabrics and woollen hosiery.

Woollen worsted and mixed fabrics fetched Rs. 17 million and the main buyers were Hong Kong, U. K., Singapore, U. S. S. R., Hungary and Zambia. Export earnings from hosiery items were more than Rs. 100 million and this was an improvement of about Rs. 24 million as compared to the corresponding period of the previous year. For this item USSR was the major importer having accounted for as much as Rs. 82.1 million. Exports of raw wool during the 9 month period stood at Rs. 18 million.

Wool and wool blended readymade garments fetched Rs. 14.26 million while carpets, druggets and numdhas earned Rs. 80.45 million. Exports of blankets amounted to Rs. 1.64 million and woollen shawls brought in Rs. 904,000. A export target of Rs. 350 million has been set forth for the year 1971-72.

During 1970-71 export of wool and woollens touched a figure of Rs. 322.26 million as against Rs. 264.76 million exported in 1969-70.

A number of export orders have been received in recent times by manufacturing units for a wide variety of woollen suitings, blankets, knitting yarn, blended fabrics, readymade garments etc.

SPORTS GOODS EXPORTS MOVE UP

The export of sports goods during April-September, 1971 at Rs. 9.4 million improved by almost 50 per cent over the corresponding period of 1970 at Rs. 6.5 million. Quantumwise, footballs and other leather balls coupled with cricket bats and requisites as also all types of rackets and requisites, represented an increase averaging nearly 70 per cent, 100 per cent and 100 per cent respectively. But the significant gain percentage wise was the 10 times increase recorded in the export of table tennis bats and requisites.

The export performance of leather items was four times better while in the case of rubber play balls and polo balls, polo sticks and equipment the rise averaged to 50 per cent. Gains to the extent of 20 per cent were also made in the export of hockey and cricket balls. Items like cups, nets, bladders, fishing lines and hockey sticks and requisites as well as carrom boards, chess boards etc. more or less maintained the level of 1970 exports.

Countrywise, exports of sports goods trebled in the case of Denmark, France and Germany. Export to U. K. also registered a cent per cent increase.

In the African region exports to Kenya, Nigeria and Zambia recorded substantial increases.

Exports to Australia were up by 50 per cent while in the case of U. S. A. the improvement was of the level of 70 per cent.

OVERSEAS SUPPLIES OF SUGAR

During April - July 1971 exports of sugar and honey at Rs. 212.39 million registered considerable improvement when compared to the same period of 1970. In April-July 1970 export supplies were valued at Rs. 54.33 million. Raw sugar beet and cane earned as much as Rs. 138.08 million in April-July 1971 while refined cane sugar brought in Rs. 70.07 million. Export value of molasses stood at Rs. 4.01 million.

In 1970-71 too India's export effort of sugar and sugar preparations at Rs. 294.47 million marked substantial rise over the preceding year's export value of Rs. 89.38 million. Export of raw sugar beet and cane in 1970-71 amounted to Rs. 177 million while those of refined sugar Rs. 99.3 million and of molasses over Rs. 16 million. In terms of quantity the offtake of raw sugar beet and cane was 221,745 tonnes while that of refined sugar about 127,000 tonnes and molasses 123,870 tonnes.

India's total production of sugar cane in 1970-71 is estimated at 13.2 million tonnes. In the same year the actual production of sugar was 3.76 million tonnes.

The country's production of sugar mill machinery in 1970-71 was worth Rs. 153 million. The installed capacity of sugar mill machinery is of the order of Rs. 210 million per annum. The export value of sugar mill machinery in the year was Rs. 1.77 million, with Ceylon, Kenya, Nigeria and Uganda as the major importers.

EXPORT OF MICA CANALISED

It has been decided to canalise the export of mica with effect from January 24, 1972, through the Minerals and Metals Trading Corporation of India, New Delhi.

For the present manufactured and fabricated mica (including die cut condenser films, spacers, bridges, washers, etc) as also micanite, reconstituted mica, mica powder and mica paper have been left out of the scope of canalisation. These varieties of mica are, therefore, permitted to be directly exported in continuance of the present practice.

The present scheme of price control will remain in operation.

ASSISTANCE TO EXPORT-ORIENTED UNITS

In an attempt to identify and remove constraints on production capacity and export potential, pre-investment feasibility surveys are being conducted in selected industries. They include garments, children's apparels, plastic moulden and dies, steel forging dies, silver mica capacitors, low permeability ferrites and sewing machine components. The surveys being conducted by the Trade Development Authority, New Delhi are expected to be ready by June 1972.

Recently, a senior representative of M/s. Citroen of France visited some manufacturing units of automobile components, under the auspices of the above organisation and evinced keen interest for the products in view of quality and price-competitiveness.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

BHILAI PLANT EXPANSION

The seventh coke oven battery of the Bhilai Steel Plant has been commissioned recently. This will mark the completion of the sixth blast furnace complex of the steel plant for further expansion to 4 million tonnes steel ingots capacity from the present capacity of 2.5 million tonnes.

The coke oven battery of 65 ovens is one of the four components of the complex which has been completed. The others are – one blast furnace, one sintering machine and two turbo blowers in the power and blowing station. The coke oven battery will yield 458,680 tonnes of coke annually.

The sixth blast furnace complex has been built almost entirely by Indian engineers, technicians and workmen. The experience gained will be of great advantage in the setting up of new steel plants in the country.

In the completion of the blast furnace complex 66.5 per cent of indigenous equipment has been used as against 10 per cent in the 1.0 million and 23 per cent in 2.5 million tonne stages. All the working drawings numbering 16,000 were developed by the Indian designers.

The construction of the coke oven battery involved 14,617 tonnes of refractory materials. The Indian refractories used in this complex form 67.8 per cent whereas only 6.8 per cent of Indian refractories was used in the 1.0 million tonne stage, and 42.1 per cent in the 2.5 million tonne stage.

In terms of ingots, the Bhilai plant, since its inception, has produced about 16.70 million tonnes of steel. In the export sector the plants products including heavy rails, structurals, merchant sections and wire rods have been supplied to several countries in South East and West Asia.

RUBBER AND RUBBER MANUFACTURES

India's total production of rubber both natural and synthetic has been improving year after year–from 57,249 tonnes in 1964-65 to 84,410 tonnes in 1967-68, 96,922 tonnes in 1968-69, 110,642 tonnes in 1969-70. Production of natural rubber in 1969-70 was of the order of 81,953 tonnes and that of synthetic rubber stood at 28,689 tonnes.

In India rubber is commercially cultivated in Kerala, Tamil Nadu, Mysore and Andaman and Nicobar islands. The total area under cultivation which was 83,867 hectares in 1955-56 increased to 196,703 hectares in 1969-70. Statewise Kerala had 182,528 hectares, Tamil Nadu 9,846 hectares, Mysore 3740 hectares, Andaman and others 589 hectares.

Against the Third Five Year Plan (1961-66) production target of 45,000 tonnes of natural rubber, the actual production in 1965-66 stood at 50,530 tonnes which exceeded the target by 12 per cent. During the Fourth Five Year Plan (1969-74) yearwise targets of production of natural rubber are 81,000 tonnes in 1969-70, 91,000 tonnes in 1970-71, 102,000 tonnes in 1971-72, 112,000 tonnes in 1972-73 and 125,000 tonnes in 1973-74. The estimated production by 1973-74 of synthetic rubber and reclaimed rubber has been placed at 35,000 tonnes and 30,000 tonnes respectively. As against this total production target of 190,000 tonnes the anticipated demand for various types of rubber has been placed at 230,000 tonnes consisting of 197,000 tonnes of natural and general purpose synthetic and butyl synthetic rubber, 3000 tonnes of special purpose oil resistant synthetic rubber and 30,000 tonnes of reclaimed rubber. Of the shortfall of 40,000 tonnes nearly 37,000 tonnes are to be made good by increased production of natural and general purpose synthetic rubber.

Various development schemes such as replanting scheme, new planting scheme, maintenance scheme etc. are now being operated for increasing production of natural rubber.

Attention to improve the synthetic rubber manufacture in the years to come is also being taken up. The Synthetics and Chemicals Plant at Bareilly has a capacity of 30,000 tonnes of S.B.R. (Emulsion). By 1973 the S.B.R. (Emulsion) capacity is likely to be improved to 50,000 tonnes while the capacity of polybutadiene high C.I.S. is to grow to a level of 20,000 tonnes by 1974, that of S.B.R. solution to 30,000 tonnes by 1977 and Polybutadiene up to 40,000 tonnes by 1980 so that the total production of polymers is to be raised to 170,000 tonnes by that time.

Rubber goods industry

The rubber goods industry covers a wide range of goods, such as automobile tyres and tubes, bicycle tyres and tubes, camel back, rubber and canvas footwear, fan and V belts, various types of rubber hoses, railway fittings, automobile rubber components, rubber cots and aprons, surgical and industrial rubber gloves, mechanical and moulded rubber goods, latex rubber goods, extruded rubber goods etc. The rubber goods industry has been able to achieve self sufficiency in respect of all the items.

The growth of rubber goods industry is reflected by the consumption of rubber in the country. India stands eighth among the rubber consuming countries in the world. Consumption of rubber which was of the order of 60,998 tonnes consisting of 48,148 tonnes of natural, 7,397 tonnes of synthetic and 5,453 tonnes of reclaimed in 1960-61 rose to 95,092 tonnes in 1965-66 with 68,685 tonnes of natural 21,553 tonnes of synthetic and 9774 tonnes of reclaimed rubber. In 1969-70 otal consumption by the industry was 130,734 tonnes nade up of 86,213 tonnes of natural, 30,636 tonnes of ynthetic and 13,885 tonnes of reclaimed rubber. During 1970-71 consumption amounted to 87,237 tonnes of natural rubber, 33,160 tonnes of synthetic rubber and 18,348 tonnes of reclaimed rubber thus making a total of 134,745 tonnes.

There are over 1400 rubber manufacturing units spread over in many parts of the country and the total production of rubber goods is estimated to be about Rs. 33,100 million. The industry directly employs more than 100,000 people.

The largest single item af manufacture is the automobile tyres and tubes accounting for 50 per cent consumption of rubber. The production of various types of tyres and tubes during 1969 and 1970 were : giant tyres 2.08 million numbers and 2.09 million numbers; giant tubes 1.5 million numbers and 1.7 million numbers; motor tyres 970,000 numbers and 966,000 numbers, motor tubes 842,000 numbers and 1.02 million numbers; motor cycle tyres 164,000 numbers and 166,000 numbers; motor cycle tubes 188,000 numbers and 194,000 numbers; scooter tyres 417,000 numbers and 437,000 numbers; scooter tubes 326,000 numbers in both the years; tractor tyres 178,000 numbers and 186,000 numbers; tractor tubes 160,000 numbers and 181,000 numbers; A.D.V. tyres 194,000 numbers and 176,000 numbers and A.D.V. tubes 217,000 numbers and 191,000 numbers. Besides the industry turns out aero tyres and tubes, off the road tyres and tubes and cab tyres in smaller quantities.

To raise the production capacity of tyres and tubes from the present level of 5.5 million numbers to 8 million numbers by 1973-74 letters of intent have been issued for creation of a combined capacity of 2.4 million numbers each of tyres and tubes. In addition the existing units are also implementing expansion programmes. Tyres and tubes industry is one of the 54 industries that have been permitted to raise production to double the present licensed capacity without a fresh licence.

The next in importance is the rubber footwear industry with an overall production of about 70 million pairs per year and accounts for about 12 per cent of the total rubber consumption.

The bicycle tyre industry is also an equally large sector accounting for 10 to 11 per cent of rubber consumption. With an installed capacity of about 24.3 million numbers production of bicycle tyres amounted to nearly 29 million numbers in 1970. Output of bicycle tubes in the same year stood at 15.8 million numbers. The installed capacity was around 22 million numbers. Besides the large-scale units there are a large number of small units mainly engaged in the manufacture of cycle tubes. During 1970 two schemes were licensed for manufacture of bicycle tyres and tubes and an existing firm took up expansion of the capacity. The total additional capacity to be generated by the scheme is 4.9 million numbers of each.

In addition to these items, the industry in 1970 turned out 90 million numbers of dipped rubber goods, 470,000 numbers of radiator hoses, 773,000 numbers of vacuum brake hoses and 5211 k. metres of other types of hoses. Production of fan belts stood at 2.3 million numbers while that of industrial V belts was 3.4 million numbers. During the year 121,000 numbers of rubber components of railway fittings, 13,644 tonnes of camel back, 1159 tonnes of rubber ply transmission beltings and 2777 tonnes of rubber conveyor beltings were also manufactured. Latex foam sponge, surgical, industrial and other gloves, water proof fabrics and ebonite are the other items in the production stream.

Besides rubber the other raw materials required by the industry are rayon and nylon tyre cord, carbon black, rubber chemicals, bead wire and tube valves. In order to put the industry on a sound footing steps were taken to establish capacity for these raw materials during the Second Plan period (1956-61) and the production of these raw material commenced one after another. Besides major portion of natural rubber and the full requirement of reclaimed rubber, rayon tyre cord and tube valves and bead wires are now being met from indigenous production.

The production of nylon tyre cord has also been commenced sometime back by a unit in Bombay with an installed capacity of 1500 tonnes per annum. The installed capacity for carbon black has also been increased by capacity expansion by two manufacturing units.

Exports

Exports of rubber goods which was a mere Rs. 19.5 million in 1962-63 reached a figure of Rs. 72.78 million in 1968-69, Rs. 78.79 million in 1969-70 and

Rs. 93.27 million in 1970-71. The 1970-71 performance was a 16.8 per cent improvement over the exports of 1969-70.

The major item of export is automobile tyres and tubes which had a share of Rs. 41.14 million in 1969-70 and Rs. 54.76 million in 1970-71. The export earning of other important rubber goods during 1970-71 were : cycle tyres and tubes Rs. 4.10 million; rubber soled convas footwear Rs. 20.71 million; rubber footwear Rs. 1.26 million; rubber gloves Rs. 5.37 million and beltings and sheetings Rs. 2.18 million.

In 1970-71 Indian automobile tyres and tubes were exported to many countries of the world, the important ones being Burma, Mauritius, Iran, Iraq, A.R.E. Greece, Fiji, Kenya, Sudan, Kuwait, Nepal, Australia, Rumania, Uganda, U.S.A., U.S.S.R. and Yugoslavia. Cycle tyres and tubes were mainly directed to Afghanistan, Ghana, Malaysia, Nigeria, Guyana, Iraq, Malawi, Peru, Sudan, Thailand and U.S.A.

Rubber footwear proved popular in Canada, U.K. and South Yemen Republic while rubber soled canvas footwear were exportad to countries like Australia, Belgium, Canada, Cyprus, Denmark, France, Federal Republic of Germany, Ivory Coast, Nepal, Netherlands, Panama Republic, South Yemen Republic, Sierra Leone, U.K., U.S.A., Windward Islands and Zambia. The Indian industry is now in a position to manufacture products that have particular demand in certain markets. For instance a leading manufacturer of tyres and tubes turned out a special type of cycle tyres for the American market.

India's rubber industry has also started the export of technical services. Already two Indian manufacturing units are collaborating in the setting up of joint ventures in Mauritius and Nigeria. The venture in Mauritius is for rubber articles while the Nigerian one is for the manufacture of cycle tyres and tubes.

INDO-CZECH PACT FOR MACHINE TOOLS PROJECT

India and Czechoslovakia signed an agreement recently under which the public sector Machine Tool Corporation in Ajmer will manufacture centreless grinding machines with Czech collaboration.

The Machine Tools Corporation, which was set up by the Government in 1967 already has three collaboration agreements with Skoda export for the manufacture of universal tool and cutting grinders, vertical surface grinders and crank shaft grinders. The Corporation has concluded another collaboration agreement with a well known firm in the German Democratic Republic for making internal grinding machines.

An important feature of work done at the Corporation's plant in Ajmer is the development of sophisticated designs. Already, basic designs of special attachments, obtained from the Central Machine Tools Institute, have since been fully developed in the company's design office.

ELECTRICAL INSULATING MATERIALS

Growth of power generation makes it necessary to transmit the power at higher voltage which in turn require the development of suitable insulating materials.

The insulating materials that are available indigenously in the country are, cellulose type materials such as press paper, pressboards, leatheroid, vulcanised fibre, fabric based materials such as cotton cloth, cotton tape, empire cloth, cambric cloth, synthetie materials such as PVC, cross-link polyethylene, various types of impregnating varnishes such as coreplate varnishes, glyptal varnish which is a very flexible alkyd resin based varnish, bitumen varnish, isophthalate polyester varnish, as well as transformer oils, wood laminates, wire enamels, synthetic resin bonded boards, papers and tubes, inert gases like neon, moulding powder, adhesive tapes etc.

Starting with the production of pressboard in thickness range of 1/32″ to 1/4,″ the industry has taken up the manufacture of higher thickness above 1/4″ up to 5″. The present capacity is around 2000 tonnes per annum. Manufacture of presspaper and pressplain in thickness range from 5 mil to 20 mil has now been commenced with an annual capacity of 3000 tonnes, thus increasing the total capacity to 5000 tonnes per annum of pressboards and presspapers, meeting the requirement for production of 18 million KVA power and distribution transformers and 40 million HP motors.

Special types of papers like presspaper/paperboards for use in chlorinated diphenyl medium and presspapers required for hermetically sealed units could also be produced now indigenously.

Production of thermosetting laminates for electrical insulation was commenced indigenously in the fifties.

Moulding powders which were not being manufactured in the country till 1960 are now available; production of BS 771 phenolic moulding powders is also established.

There are already two manufacturers of transformer oils and a third unit has been recently established. These three manufacturers should be able to meet the demand in the country.

Mica products such as micanite, micafolium, commutator micanite are also manufactured in small quantities, using mica splittings. So also various type of fibre glass and glass cloth are also produced.

There are some insulating materials that have been recently developed, particularly for Class 'E' insulation and likewise plastic materials such as cross-link polythene. In the case of both power and distribution transformers, the requirements are mainly Class 'A' insulating materials while in the rotating machinery, Class 'A' insulating materials are being vitually replaced by higher classes of insulations, depending on applications.

There is sufficient capacity to produce Class 'A' insulating materials and a beginning has been made now for manufactures of higher classes.

The insulator industry has been well established and while there are more than six major manufacturers of high tension insulators, there are a large number of manufacturers in the small sector for the manufacture of low tension insulators who would be able to meet the present and future demand. Procelain bushings for transformers above 66 KV and procelain housings for lighting arrestors are now available.

Development has taken place in the production of polycone as well as solid core insulators required for railway electrification.

ALUMINIUM FOIL IN PACKAGING

India has made significant progress in the field of flexible packaging and the intrinsic qualities of aluminium as a packaging material are being appreciated. Until a few years ago aluminium foil was used mainly for tea chest linings, cigarette bundling and tagger diaphragm. Today it has a much wider application and is used in strip-packaging of pharmaceuticals and other tablets, flexible pouches for dehydrated and other foods, caps for milk bottles, wraps for confectionery, biscuits, toilet articles and defence packaging.

The aluminium foil industry starting with one unit and a capacity of 3000 tonnes, now has 6,000 tonnes of production capacity with three units in the line. One of the manufacturing units is programming to have a further capacity of 1000 tonnes.

Consumption of aluminium foil in the country both for packaging and non-packaging purposes has been going up steadily over the years–from 2800 tonnes in 1962-63 to about 4800 tonnes in 1968-69. By 1973-74 the requirement of aluminium foil both for packaging and non-packaging uses is expected to reach a figure of 9070 tonnes. Of this the demand for packaging will be of the order of 7600 tonnes consisting of 850 tonnes of linings, 800 tonnes of tagger, 900 tonnes of milk caps, 170 tonnes of capsules, 260 tonnes of lable and 4600 tonnes of wraps and pouches.

PACKAGING AWARDS

India secured three out of the 10 Asiastar awards for excellence in packaging. In a contest held in Bombay recently India has obtained the largest number of awards, indicating the significant strides made in the field of packaging over the years.

There were about 54 entries from member countries of the Asian Packaging Federation for the Asiastar contest.

The three Asiastar award winners are the Wimco match box presentation pack, the rose package designed by the Indian Institute of Packaging for the State Trading Corporation and a honeycomb package designed by Bombay Packaging.

EXPANSION OF ORE HANDLING FACILITIES

The iron ore berth at the Madras Harbour which is expected to be ready by the end of 1973 or early 1974 will increase the handling of ore to 5 million tonnes per year.

The port at present can handle three million tonnes of ore annually with the existing facilities, though its capacity is only 2.5 million per year.

The oil berth for receiving giant tankers carrying crude for Madras refineries is expected to be ready by the middle of this year.

Initially 40,000 tonnes would be received and it would gradually go upto 80,000 tonne tankers.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL PROGRESS

SCIENTIFIC RESEARCH AND IMPORT SUBSTITUTION

In an exercise carried out by the Council of Scientific and Industrial Research (CSIR) under the pressure of Emergency, a listing of some 132 items was done, of which the imports exceed rupees one million each. It was found that in 97 per cent of the cases the capability to produce either existed in India or could easily be developed on the basis of available equipment and personnel in the CSIR laboratories or in collaboration with industrial firms. In a further exercise carried out by the laboratories, they have indicated as many as 637 items on which either indigenous substitutes are available or under investigation or can easily be developed. A critical examination of those is in progress, but it is obvious that vast potential for import substitution exists. If fully geared to the policy of self-reliance, it can make a major impact by way of saving of foreign exchange on imported materials and equipment.

To give a real shape to the policies of import substitution, the exact cause for import must be isolated. If the problem is technological, it must be resolved into its basic components. As a preliminary exercise in the direction, the CSIR Headquarters group undertoook a depth analysis of four items and discovered that in those cases the technology and raw materials were available, the equipment was also available in the industry but still import worth a few million was taking place. In another case, it was discovered that for each minimum economic production unit equipment worth nearly Rs. 20 million was being imported. The gap lay in regard to availability of equipment and not so much in the field of technology. In each case, an economic and technological profile was drawn up and subjected to a depth analysis in regard to capacity, equipment, machinery, raw materials, specifications, technology, instrumentation and specialised personnel. An exercise of this type is necessary to isolate the technological tasks and make the maximum use of the scientific and technological talent, facilities and potential available in the CSIR laboratories.

The National Committee on Science and Technology (NCST) has set up a number of specialised groups and appointed coordinators to carry out an analysis of each area of industry such as chemicals, fertilisers, machine tools, engineering goods, electronics etc. A study carried out by the group on machine tools reveals that the country has installed capacity and competence in many units who may be allotted specialised machines if necessary one each in accordance with their capability and specialisation for development and production. National Technology Plans in different areas are under preparation with the involvement of scientistis, technologists and engineers from CSIR labaratories and other specialised agencics along wilh the NCST. The efforts would lay the foundation of a national plan for import substitution and self-reliance.

Waste utilisation, recovery and conservation of limited and rare materials constitute another step toward self-reliance. Efforts have to be made at recovery of imported metals, materials, regeneration of imported chemicals and conversion of wastes into industrially utilisable products. A number of possibilities have been cited. For example, large quantities of potassic fertilisers are imported and the potassium salts can be recovered from sea bitterns. A major developmental support could induce the salt manufacturers to recover every gram of potassium salt which is at present permitted to go waste. The recovery of zinc, manganese dioxide and acetylene black from used battery cells is of importance when zinc is largely imported. The process of aluminising of wire and steel products developed by National Metallurgical Laboratory could result in substantial saving of zinc. The recovery of newsprint for reuse in newspapers is a proven process in other countries. The recovery of potash from molasses distillery wastes is a practical proposition.

Winning back of zinc from effluents of dye industry and from viscose rayon manufacture can be introduced. The recovery of tungsten, copper, aluminium and glass from used bulbs is a practical and economic proposition and the technology for these is available. Cotton dust from textile mills is excellent for making compost. Fertilizers can be developed from waste hair which are usually thrown away. A number of agrowastes can be converted into particle and hard boards. Recovery of tin from scrap, treatment of metallurgical wastes for recovery of brass, bronze and other metallic values, recovery of vanadium from sodium complex salt, recovery of secondary ordnance lead and regeneration of used lubrication oil are areas of promise where technology is available.

The CSIR has already carried out an exercise in regard to recovery of tungsten from fused bulbs, flash light tubes, etc. which shows that this would be an economic proposition. They are poised for further work in the field.

Council of Scientific and Industrial Research (CSIR) is the largest organisation set up and founded by the Government aimed at generating scientific and technological potential to support the national policies. CSIR possesses within its ambit of activity specialisations in different fields of science and technology such as chemical technology, physics, engineering, metallurgy, instrumantation, geophysics, oceanography, hydrology, glass and ceramics, food, leather, fuels, apart from possessing multi-disciplinary institutions. These scientific institutions are manned by qualified, trained, and experienced scientists and technologists numbering about 9,500 and supported by a strong infrastructure of workshops, engineering, library, documentation, information and extension services.

NEW TV SETS DEVELOPED

A transistorised TV set, suitable for use in villages, has been developed by the Electronics System Division (ESD) of the Indian Space Research Organisation.

The TV sets have been developed for the satellites instructional television experiment. The experiment envisages the use of a communications satellite for broadcasting instructional TV programmes to about 5,000 villages in the country.

The ESD has started batch-production of the solid state TV sets after they were successfully field-tested. The sets have been developed in three sizes, 11 inches, 19 inches and 23 inches.

The foreign exchange component in these sets is estimated at ten per cent, which will be reduced gradually.

Another important work being initiated by ESD was to design and develop "low power transmitter" to a power level of ten watt. These transmitters had already been tested by using a locally designed super-turnstile antenna.

FLAW DETECTORS

Ultrasonic flaw detectors to be used in the railways for testing axles and rails for hidden cracks and defects have been produced by M/s. Vibronics Ltd., Bombay.

These detectors, produced with fully indigenous know-how, cost Rs. 15,000 less than the imported ones costing about Rs. 35,000 each.

The detectors are also used extensively in steel mills, shipyards, foundries and engineering workshops.

By way of import substitution, the device now developed would result in a foreign exchange saving of Rs. 5 million. The import content now is about 5 per cent of the total cost of the equipment. Even this would be eliminated with the supply of certain accessories by Bharat Electronic Ltd., Bangalore.

EMULSION PAINTS FROM DRYING OIL

A process for the monufacture of emulsion paints from styrenated drying oils has been developed at the Regional Research Laboratory, Hyderabad. The process consists of styrenation of of drying oil, preparation of emulsion vehicle, preparation of pigment paste and finally preparation of paint.

The process has been studied on a pilot plant run for a year. All the raw materials required are available within the country and the plant and machinery can be fabricated indigenously.

COTTON TEXTILES

India holds an important position in the world's textile economy. It is 4th largest producer of cotton and cotton textiles alike, next only to the U.S.A., U.S.S.R. and mainland China. In cotton yarn it has emerged as the second largest, next to U.S.A. Among the world's exporters of cotton textiles too India has been in the forefront, generally as the third largest.

The cotton textile industry covers a spectrum of technologies ranging from the hand spun and hand-woven khadi to the modern large-scale mills which employ automatic process of production. Structurally the industry consists of two broad divisions – the organised mill sector and the decentralised sector, the latter comprising the powerlooms, handlooms and khadi. The mill sector employs more than 938,000 workers.

Mill Sector

By mid-1971 there were about 668 cotton textile mills having a total installed capacity of 17.99 million spindles and about 209,000 looms. The number of spinning mills was nearly 377 with a capacity of 5.74 million spindles and the number of composite mills was 291 with a capacity of 12.25 million spindles and 209,000 looms.

Of the 377 spinning mills in the country Tamil Nadu has the largest number 183 mills. Andhra Pradesh has 28 mills, Gujarat 26, Kerala and West Bengal 22 each, Maharashtra 21, Uttar Pradesh 20 and Mysore 15. The others are spread over in Assam, Bihar, Haryana, Jammu and Kashmir, Madhya Pradesh, Orissia, Punjab, Rajasthan, Pondicherry and Goa. In the case of composite mills, Gujarat with 91 has the maximum number followed by Maharashtra with 79, Tamil Nadu 24, West Bengal 19, Madhya Pradesh 17, Uttar Pradesh 16, Mysore 12 and Rajasthan 11. The other States having composite mills in smaller numbers are Andhra Pradesh, Bihar, Haryana, Kerala, Orrissa, Punjab, Delhi and Pondicherry.

In the mill sector, production of cloth was of the order of 4157 million metres in 1970. Categorywise, of the total production in 1970, coarse textiles accounted for 579 million metres, medium B variety 1,108 million metres, medium A variety 1866 million metres, fine variety 219 million metres and superfine 385 million metres.

The quantity of different varieties of cloth packed during 1970 were : chaddars, bedsheets, bedcovers, tablecloth etc. 170 million metres, dhoties, dupattas, khes, sarees etc. 247 million metres, drills, jeans, coating etc. 340 million metres, poplin, crepe, twills, shirting, sucies etc. 1920 million metres, longcloth, sheeting markin etc. 974 million metres, mulls, voils, dorias, leno cloth etc. 358 million metres and others 234 million metres.

In the first 5 months of 1971 (January to May 1971) production of cloth in the mill sector stood at 1605 million metres. This consists of 186 million metres of coarse, 383.6 million metres of medium B, 736.3 million metres of Medium A, 113.8 million metres of fine and 185.1 million metres of superfine cloth. As to the packings by mills during this 5 month period, wearables like dhoties, sarees, shirtings, longcloth, voils, mulls, poplin, crepe, twills, etc. accounted for 1515.4 million metres while non-wearables like mosquito netting, canvas, duck, furnishing fabrics, bed sheets, bed covers, towelling cloth etc. had a share of 82 million metres. Percentage of non-wearables accounted for about 5.4 per cent in the total packings.

Cotton blended fabrics have started gaining ground in recent years. Blended yarn with cotton as one of the elements is produced primarily from cotton and polyester fibre, cotton and viscose staple fibre and cotton and terylene. The total output of blended fabrics in the first five months of 1971 (January–May 1971) was of the order of 50.5 million metres.

Cotton Yarn

In 1970 total production of yarn amounted to about 965 million kg. This was made up of 114.7 million kg. of 1-10 counts, 264.5 million kg. of 11-20s, 284.1 million kg. of 21-30s, 182.0 million kg. of 31-40s, 73.5 million kg. of 41-60s, 27.5 million kg. of 61-80s and 18.6 million kg. of 81s and above.

Output of yarn in the first five months of 1971 (January to May 1971) was of the order of 352.9 million kg. Of this the outturn of composite mills was 247.9 million kg. and that of spinning mills 105 million kg. Countwise, 21-30s topped the list with 102.8 million kg. followed by 10-20s at 81.5 million kg., 31-40s at 74.38 million kg. 1-10s at 41.3 million kg., 41-60s at 31.3 million kg., 61-80s at 12.2 million kg. and 81 and above 8.9 million kg.

One interesting feature of the cotton yarn production in India is the growing percentage share of higher counts; the share of counts above 40s. The percentage of higher counts was around 13 per cent of the total yarn production in 1970 as compared 8.6 per cent share these had in the 1964 production.

Raw Cotton

Production of cotton has been gradually improving. By the end of the first Five-Year Plan (1955-56) the cotton production stood at 3.95 million bales. This improved to 5.33 million bales by the end of Second Plan (1960-61). Although there was a shortfall by the end of the Third Plan (1965-66) at 4.76 million bales, in 1969-70 the production improved to 5.65 million bales. The yield per hectare has been on consistent rise – 94 kg. per hectare by 1955-56, 105 kg. per hectare by 1960-61, 108 kg. per hectare in 1965-66 and 124 kg. per hectare by beginning of present decade.

Cotton production in the country has been short of the requirement of the cotton textile industry. Indian cotton is mainly of short and medium staple length that is mostly one inch and below. The country also produces some long staple varieties, however. As the indigenous production is still not adequate to meet the industry's requirements, the long staple varieties are having to be imported keeping in view the indigenous requirements from time to time. With a view to improving the cotton supply position the Government of India have launched intensive cotton district programmes that envisage application of modern technical devices to ensure better yields. It is estimated that the project would yield additional produce of 400,000 to 500,000 bales by 1973-74.

Many new strains of cotton have been developed in the country in recent times. A new strain developed by the Tamil Nadu Agricultural Department is stated to have the highest mean fibre length–108″ for any indigenous variety so far.

The strain would be capable of being spun into 40s count of yarn. By the cultivation of the new high yielder over the existing desi cotton tract of 225,000 hectares in Tamil Nadu an additional production of 26,000 bales has been estimated. The new strain has been tested in Andhra Pradesh where a mean yield of 515 kg per hectare has been recorded.

Another long staple strain developed and cultivated in 1970-71 was the MCU 5. This strain yields about 6.5 quintals of lint per hectare. It has higher fibre strength a lower micronaive value.

Yet another variety is Hybrid-4 which has been developed in Gujarat. The Hybrid-4 cotton in the result of cross-breeding and is comparable with imported Egyptian cotton. Besides it gives three times more yield than other varieties and takes a shorter period to mature. As against ten months in other strains, this takes only seven months to blossom. Also while the average yield of others is 160 kg per hectare, the average Hybrid-4 yields as much as 480 kg. per hectare.

Exports

Indian exports of various items of cotton textiles have registered improvement during the recent years. The textiles have made an entry into the West European markets which remained rather inaccessible. Export of cotton yarn too increased in the recent years. Viewed against the background of a static world export trade in cotton textiles for the last 5-6 decades and of all countries endeavouring to set up their own textile industries, India's export performance is by no means discouraging. India's share in the world trade in cotton piece goods alone, which constitutes the bulk of the exports, has been between 8-10 per cent in the last few years.

From Rs. 757.3 in 1966-67 the foreign exchange earnings of the textiles have gone up to Rs. 1153 million in 1969-70. During 1970-71, however, the exports at over Rs. 1097 million showed a marginal decline. The major reason for the decline was the shortage of cotton due to fall in domestic crop and the consequent rise in prices. With the programmes for improving cotton yield and production well under way as also the plans for diversifying the composition and direction of export trade in textiles has started picking up with a promise for the furture.

At the same time a number of timely measures are being introduced to modernise the export oriented textile mills. The import of sophisticated machinery is being allowed in relation to the past export performance of the mills. Under bilateral arrangements higher export quotas form U. S. A. and the EEC countries have been secured. A scheme for production of readymade garments under customs bond using imported fabrics has also been put into operation. The scheme for export of blended textiles has been streamlined. All these steps are expected to provide further fillip to the already active export trade in cotton textiles.

Certain deterrent developments at the demand side such as the U. K.'s imposition of a 15 per cent levy on imports of cotton textiles from the Commonwealth countries have however introduced uncertainties in the export growth to specific markets. These have prompted the Indian Government and industry to diversify exports to non-traditional as also to strengthen the production and marketing techniques to suit the changing tastes of the world markets.

The varieties of cotton cloth that constitute the bulk of the exports are sheetings, voils and mulls, drill, long cloth and shirtings. Grey fabrics have constituted the bulk of exports of piece goods and next to this–fabrics in categories like white, piece dyed, printed and yarn dyed. But in 1971, non-grey varieties (Processed) stole a march over the exports of grey variety. The increase in the share of the processed fabrics was mainly noticed in bleached, printed and piece-dyed categories. Increased quantitities of apparal and other manufactures are also being supplied overseas in recent years. Over the years India has improved its unit price realisation in exports.

The share of mill made cotton piecegoods in the overall exports of cotton textiles amounted to Rs. 681.26 million (419 million sq. metres).

The main varieties of mill-made piecegoods exported and their export value in 1970-71 were as follows - unbleached bed ticking Rs. 2.45 million; canvas unbleached Rs. 15.13 million; drill and denim unbleached Rs. 13.48 million; unbleached furnishing cloth Rs. 16.08 million; long cloth unbleached Rs. 11.31 million; poplin broad cloth unbleached Rs. 1.23 million; sheeting unbleached Rs. 172.76 million; unbleached shirting Rs. 7.84 million; twill satin unbleached Rs. 2.22 million; other types of unbleached textiles Rs. 52.18 million; terry fabrics Rs. 6.21 million; bleached canvas Rs. 1.43 million; bleached dhoti Rs. 6.79 million; bleached drill and denim Rs. 1.23 million; bleached flanellette Rs. 3.45 million; bleached long cloth Rs. 3.23 million; bleached mulls Rs. 7.77 million; bleached muslin Rs. 1.06 million; bleached poplin broadcloth Rs. 17.41 million; saree bleached Rs. 3.53 million; bleached sheeting Rs. 36.03 million; bleached twill satin Rs. 12.73 million; bleached voil Rs. 13.56 million; other types of bleached textiles Rs. 13.36 million; machine printed bed ticking Rs. 1.53 million; machine printed furnishing cloth Rs. 35.49 million; machine printed long cloth Rs. 4.39 million; poplin broad cloth machine printed Rs. 33.63 million; machine printed sarees Rs. 2.09 million: machine printed shirting Rs. 4.58 million; machine printed twill and satin Rs. 16.05 million; machine printed voil Rs. 26.28 million; other varieties of machine printed textiles Rs. 20.62 million; piece dyed bed ticking Rs. 1.12 million; piece dyed canvas Rs. 1.71 million; piece dyed cotton suting Rs. 2.5 million; drill and denim piece dyed Rs. 15.34 million; piece dyed flannelette Rs. 2.57 million; furnishing cloth piece dyed Rs. 2.13 million; piece dyed mulls Rs. 1.68 million; poplin broad cloth piece dyed Rs. 11.77 million; piece dyed shirting Rs. 1.31 million; piece dyed twill and satin Rs. 1.18 million; voil piece dyed Rs. 25.62 million; other piece dyed varieties Rs. 8.25 million; yarn dyed bed ticking Rs. 11.48 million; flannelette yarn dyed Rs. 2.44 million: miscellaneous types of yarn dyed textiles Rs. 9.69 million; hand printed sarees Rs. 3.17 million and other hand printed and hand dyed cotton fabrics Rs. 3.68 million.

Handloom Sector

The handloom industry in India constitute the second important sector of the textile industry. Presently there are over 3 million handlooms working on all fibres providing a good source of employment.

The decentralised sector turned out 3692 million metres of cloth during 1970. This sector has been having consistent production increase from 3097 million metres in 1966 to 3179 million metres in 1967, 3530 million metres in 1968 and 3538 million metres in 1969.

The handloom sector turns out a variety of cotton fabrics and non-fabrics such as Bleeding Madras, Real Madras handkerchiefs; lungies and sarongs, dhoties, sarees, shirtings, carpets and durries, bedsheets and blankets, pillow covers, table cloth, towels, napkins and others.

Beleeding Madras is an essentially export oriented fabric. Some of the colours used in the fabric blend with one another in washing, thereby imparting to the fabric a muted effect, with differing and exciting patterns. This property of the fabric has been the main promoter of its popularity. The fabric is manufactured in a number of designs ranging from ordinary check pattern to intricate over printed floral designs. Recently some changes have been made in the check pattern designs.

A sizeable export market has been seized by the handloom fabrics. Export of cotton handloom fabrics and nonfabrics showed an uptrend in 1970-71 at Rs. 133.30 million as against Rs. 113.61 million in 1969-70. The share of cotton fabrics in 1970-71 exports was of the order of Rs. 77.95 million while that of non-fabrics was Rs. 55.35 million. Items like Bleeding Madras, Real Madras handkerchiefs, dhoties, shirtings, bedsheets and blankets, towels, napkins, pillow covers, table cloth and other miscellaneous types increased their export performance. Lungies and sarongs, sarees and carpets and durries however registered some export decline.

Exports of Beelding Madras after a period of decline is now picking up. Many exporters have received orders not only from U.S.A. but also from countries like Japan, France etc. Similarly the export destination of Real Madras handkerchiefs are also getting diversified.

The growing export trend in handlooms is again reflected by their performance during April–August 1971. Exports during the period amounted to Rs. 57.71 million as compared to Rs. 46.26 million exported during the corresponding period of 1970.

'Khadi' (handspun and hand-woven textile of India) is another area of growth. About 1600 institutions in the country are active in the Khadi programme and are engaged to produce and market this variety not only in cotton but silk and woollen too. The annual production of Khadi is of the order of about 60 million square metres of the cotton variety, 5 million sq. metres of woollen variety, and 2 million sq. metres of the silk variety. Cotton yarn production is about 11 million kg. per annum. Rising overseas demand for Indian Khadi came to light at international trade fairs in which India participated during the seventies. □

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EXPORT TRADE IN DYESTUFFS

A new entrant in the export field, the performance of the dyestuff industry is steadily picking up. From an export turnover of Rs. 2.98 million in 1967-68 the industry earned from foreign supplies an amount of Rs. 11.20 million in 1968-69 and Rs. 15.34 million in 1969-70. The 1970-71's export at Rs. 24.10 million was a significant improvement over the previous year's performance. The rising export trend is continuing in the current year too. During April-July 1971, exports touched a figure of Rs. 5.9 million as against Rs. 5.05 million worth of exports during the comparable period of 1970.

The 1970-71 export composition was : acid dyes Rs. 2.42 million, basic dyes Rs. 1.45 million, direct dyes and sulphur dyes Rs. 5.56 million, solvent dyes and organic pigments Rs. 1.46 million, reactive dyes Rs. 1.04 million, vat dyes Rs. 5.26 million and other organic synthetic dyes Rs. 6.86 million.

A single exporting firm M/s. Amar Dye Chem. Ltd., Rang Udyan, Sitaldevi Tample Road, Mahim, Bombay-16, stepped up their exports from Rs. 2.8 million in 1970 to Rs. 5.5 million in 1971.

The export stream of the firm includes such items as reactive dyes, fast colour bases, pigments, fast colour salts, basic colours, T.P.M. dyes, pigment emulsions, naphthols, optical whiteners, beta oxy naphtholic acid etc.

Taking up product diversification and capacity expansion, the firm is having on its list a 3800 tonne rubber chemical project, a 5000 tonne toluene de-isocyanate TDI project (basic raw material for polyurethane foam) and a 2000 tonne hydrogen peroxide project.

Production of various dyes by the organised sector in 1970 was of the order of 13,400 tonnes. Adding the outturn by the small scale units, the total estimated production in the country was around 17,000 tonnes. Output of dye intermediates stood at 19,600 tonnes in 1970.

INDIA TO EXPORT HYDRAULIC INSTRUMENTS

The Central Water and Power Research Station, Poona of the Ministry of Irrigation and Power has received an order from the Singapore Port Authority for the manufacture and supply of one Point Integrating Sediment Sampler and two Short Period Sea Wave Height Recorders. The order is worth Rs. 35,000 approximately.

This is the first time that the Central Water and Power Research Station is exporting hydraulic instruments abroad.

GLOBAL TENDER SECURED FROM AFGHANISTAN

The Ministry of Public Works of Road Maintenance, Government of Afghanistan have recently selected an Indian firm for the award of a contract on the basis of a global tender.

The contract which was invited under International Development Association (IDA) Programme was for the supply of two portable gravel crushing and screening plants of 40/45 tons per hour capacity and two portable bitumen melting plants by oil heating arrangements. The total value of the order is about Rs. 0.9 million. The supplies are to be effected within three to four months.

The Indian firm that received the order M/s. Sayaji Iron and Engineering Company Private Ltd., Chhani Road, Baroda–2 have earlier secured another order from the Arab Republic of Egypt for the supply of concrete vibrators and stone crushers at a value of Rs. 1.5 million.

ONE MORE ORDER FOR POWER CABLES

Starting with a mere Rs. 1.55 million exports in 1963-64 the cable industry has greatly diversified its export range and expanded its foreign destinations. Today more than 50 countries are importing wires and cables from India. The value of such overseas supplies during 1970-71 amounted to Rs. 113.19 million.

In 1970-71, the major overseas destinations for bare aluminium conductors were Yugoslavia (Rs. 7.2 million, U.S.S.R. (Rs. 5.05 million), A.R.E. (Rs. 4.38 million), Sudan (Rs. 3.96 million), Iran (Rs. 2.60 million), Tanzania, (Rs. 2.1 million), Kuwait (Rs. 1.31 million) and Thailand (Rs. 1.26 million).

For bare copper conductors, Iran was the main importer with an intake worth Rs. 39.56 million. Kuwait and Singapore accounted for Rs. 2.38 million and Rs. 1.93 million respectively.

Insulated cables and wires from India were exported in considerable quantities to U.S.S.R. at Rs. 5.52 million, Kuwait Rs. 5.08 million, Singapore Rs. 3.1 million, Iran Rs. 2.6 million, Burma Rs. 2.56 million, Federal Republic of Germany Rs. 1.44 million and Argentina Rs. 1.05 million.

Kuwait which has emerged as an important market for cables has once again placed an order for paper insulated cables and cable jointing boxes of a total value of Rs. 19.57 million (KD 931, 841. 480). This consists of 11 kv paper insulated cables and pilot cables worth Rs. 18.78 million and cable jointing boxes worth Rs. 0.79 million. The export order from the Ministry of Electricity and Water, Kuwait is to be executed by M/s. Indian Cable Co. Ltd., 9, Hare Street, Calcutta-1.

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EXPORT ORDER FOR TELEPHONE EQUIPMENT

India's telecommunication industry has not only stepped up its export sales but has considerably diversified export destinations. Telecommunication apparatus from India are now exported not only to the neighbouring countries of Asia but also to many Western and other developed countries. The value of such exports during 1970-71 stood at Rs. 7.73 million. Of this, telegraph and telephone apparatus and parts alone fetched Rs. 5.8 million.

About Rs. 1.9 million worth of telephone instruments and accessories manufactured by M/s. Indian Telephone Industries Ltd., Dooravaninagar, Bangalore-16, were exported in the first three quarters of 1971-72 (April-December 1971). This consisted of Rs. 462,000 worth of export sales in the first quarter (April-June 1971), Rs. 697,000 worth in the second quarter (July-September) and Rs. 744,000 in the third quarter (October-December).

The undertaking has set an export target of Rs. 3.00 million for the whole of 1971-72. The company's total exports during 1970-71 amounted to Rs. 5.02 million.

The overseas supplies made during October-December 1971 include: Rs. 20, 485 worth of automatic telephone exchange equipment and armature assembly to Australia, Rs. 51,672 worth of crossbar exchange spares to Belgium, Rs. 16,377 worth of condensers, telephone and exchange spares to Ceylon, Rs. 177,423 worth of telephone exchange equipment to Kenya, Rs. 31,573 worth of capacitors and telephone spares to Malaysia, Rs. 45,705 worth of crossbar exchange equipment, auto desk 330 type telephones with push buttons and telephone instruments to Nepal, Rs. 98,301 worth of capacitors and telephone exchange spares to Singapore, Rs. 12,317 worth of telephone exchange spares and technical services to Tanzania, Rs. 42,588 worth of 10.1 line private automatic exchanges and technical services to Uganda, Rs. 210,145 worth of selector mechanism to U.K. and Rs. 35,411 worth of long distance subscriber line relay sets to Zambia.

With a production of nearly Rs. 153.3 million worth of instruments during April-December 1971, the production line of ITI includes automatic telephone switch frames, strowger and crossbar exchanges, long distance transmission system including coaxial and microwave, special transmission equipment for defence services, electronic test instruments and so on.

EXPLOSIVES TO WORLD MARKETS

The export value of explosives and pyrotechnic products has improved from Rs. 0.1 million in 1969-70 to Rs. 1.19 million in the following year. In the latter year, exports of fuses, primers and detonators were of a value of Rs. 1.07 million.

During the current year too export prospects look bright as seen from the performance during April—July 1971. In this period foreign supplies reached a figure of nearly Rs. 736,000 as against Rs. 327,000 exported in the comparable period of 1970.

A single exporting firm M/s. Imkemex (India) Ltd., 34, Chowringhee, Calcutta shipped as much as Rs. 1.1 million worth of explosives to Iran and Dubai in October 1970 - September 1971. Supplies to Iran amounted to Rs. 800,000 and to Dubai Rs. 300,000. The order for supply of safety fuses to Iran was secured against global competition.

The overall exports of the firm during the period was of the order of Rs. 22 million. The bulk of the company's exports (to about 50 countries) consists of polyester fabrics and garments, dyestuffs, textile auxiliaries, paints, plastics and chemical raw materials.

INDIAN BOOKS FOR EXPORT

Printed material from India like books and pamphlets, maps, charts, newspapers and journals, picture postcards and greeting cards, calendars, advertising materials, printed pictures secured as much as Rs. 13.61 milllon in 1970-71 by way of exports.

Books, pamphets brochures and maps fetched Rs. 7.75 million while newspapers journals etc. contributed Rs. 2.37 million. The export value of calendars, posters and other advertising materials, pictures and photographs etc. stood at Rs. 2.86 million.

A newly established publishing house M/s. Tata Mc Graw Hill Publishing Co. Ltd., New Delhi exported books and publications worth Rs. 167,000 during the year 1971. The company has launched a book production programme to popularise India produced books in West Asia, Europe and U.S.A.

BULK EXPORT ORDER FOR CIGARETTES

Closely following the export orders placed by the Soviet Union on Indian cigarette manufactures in recent times, another bulk order for 200 million cigarettes has been received from that country.

The order is again placed on M/s. Golden Tobacco Co. Private Ltd. Tobacco House, Vile Parle, Bombay-26 for their Panama brand cigarettes. Earlier in 1971 the company had supplied 400 million cigarettes of the same brand to U.S.S.R.

EXPORT PERFORMANCE AND POTENTIAL

TOBACCO EXPORTS MOVE UP

Reversing the down trend in 1970-71, exports of unmanufactured tobacco have picked up during the first nine months of 1971-72 (April-December 1971). Quantitatively exports in this period amounted to 46.7 million kg. and in value stood at Rs. 359.85 million. As compared with the same period of 1970 though the quantitative increase is only 15 per cent, the increase in value is approximately 38 per cent. During the period April-December, 1970, exports were of the order of 40.7 million kg. at Rs. 261.39 million.

Both quantitatively and in value East European markets accounted for the major rise. In the case of West European, South and South East Asian markets, improvements were registered in terms of value, though not quantitatively thus indicating the rise in unit value of exports. Exports to the United Kingdom which continues to be the major market has maintained a steady level in quantity though in value this has gone up by more than Rs. 11 million.

UK's offtake was 15.4 million kg. valued at Rs. 138.8 million in April-December 1971 as against 15.42 million kg. at Rs. 127.5 million exported in April-December 1970.

Other West European countries accounted for Rs. 19.05 million as against Rs. 17.9 million. However, quantitatively the exports were of the order of 2.6 million kg. and 4.2 million kg. For this increase in value Irish Republic with imports worth Rs. 14.4 million contributed as much as Rs. 2.63 million.

In the case of East European markets, which imported 18.74 million kg. at a value of Rs. 144.7 million during April-December 1971, the increase is more than double as compared to the same period of 1970. U.S.S.R. raised its imports to 17.26 million kg. at Rs. 13.7 million from 6.98 million kg. at Rs. 55.4 million. Czechoslovakia which had no share in the April-December 1970 exports accounted for 615,000 kg. of a value of Rs. 5.7 million.

South and South East Aisa had a total intake of 5 million kg. valued at Rs. 43.8 million in April-December 1971. In the comparable period of 1970 exports to this region amounted to Rs. 35.8 million in value and 6.3 million kg. in quantity. Purchases by Japan increased to 4.2 million kg. and Rs. 39.6 million from 2.5 million kg. and Rs. 23.9 million.

During the whole year 1970-71, India's export of unmanufactured tobacco stood at Rs. 314 million.

UPTREND IN FOOTWEAR EXPORTS

Export buoyancy in the footwear industry is evident from the ever-rising growth in its overseas supplies. The export value in 1971 was higher at Rs. 120 million against Rs. 95 million in 1970.

India-made footwear products have become widely popular in European markets owing to rising production costs there. Handmade items in particular are fast moving out. The introduction of the Generalised Scheme of Preferences (GSP) in EEC markets is yet another factor in favour of export growth in the line.

In 1971, the Soviet Union led the list of footwear importers from India. Their purchases were Rs. 35.7 million against Rs. 26 million in 1970. U.S.A. absorbed worth Rs. 25.6 million against Rs. 20.4 million; the U.K. Rs. 6.12 million (Rs. 0.13 million), Astralia Rs. 5.5 million (Rs. 2.8 million).

Exports of leather goods amounted to Rs. 13 million as against Rs. 15 million in 1970. These goods comprise bags, wallets and fancy articles. Major buyers were Japan, U.S.A. and the U.K.

Exports of finished leather and leather manufactures in 1971 are estimated at Rs. 295.1 million. In the earlier year, the export value was Rs. 317.4 million. The decline in exports was mainly due to a sharp fall in the offtake of chrome leather from Rs. 250 million in 1970 to Rs. 165 million in 1971. This decline was because of a shrinkage in the world demand for the wet blue variety. The leading importer of chrome, the U.S.S.R. bought worth only Rs. 98.6 million while in 1970 their imports from India were as much as Rs. 172 million. However, the prospects of larger chrome exports to U.S.S.R appear to be reviving.

RISE IN SHELLAC EXPORTS

Shellac exports from India during the first nine months of 1971-72 (April-December 1971) moved up to 10,567 tonnes at Rs. 47.1 million as compared to 10,007 tonnes valued at Rs. 34.5 million exported during April-December 1970. Though in quantity the exports were almost of the same level, value wise increase was of the order of Rs. 12.6 million., showing a 36 per cent rise. The larger earning is indicative of the better unit price realisation in international markets.

During 1970-71 lac exports amounted to nearly 13,347 tonnes valued at Rs. 50 million. With the orders in hand export of this item is expected to go up by Rs. 10 million to Rs. 60 million in the current financial year.

About 90 per cent of India's total production of lac is exported. Nearly 70 countries import lac from India, the major ones being U.S.A., U.K., Federal Republic of Germany, Brazil, U.S.S.R. and the East European countries, Australia, France, Italy, Argentina and Japan.

EXPORT PERFORMANCE OF COTTON TEXTILES

Exports of mill-made cotton textiles from India stood at Rs. 1044.8 million in 1971. In 1970, the export value was Rs. 1164.9 million. This was mainly due to a sharp decline in the offtake of yarn which fetched Rs. 128.5 million in 1971 against Rs. 268.8 million in 1970. Cotton piecegoods earned Rs. 646.5 million compared to Rs. 656.6 million. Exports of handkerchiefs, towels and furnishings stood at Rs. 8.6 million, Rs. 45.5 million and Rs. 0.6 million respectively in 1971. Hosiery exports were Rs. 1.8 million.

Exports of cotton apparel however fared better having fetched Rs. 90.14 million in 1971 as compared to Rs. 77.36 million in 1970. In fact cotton apparels have been growingly active in export market since 1967 when the export value was Rs. 24.5 million which improved to Rs. 30.3 million and Rs. 43.7 million in 1968 and 1969.

Directionwise, the exports to Africa, Oceania and America went up by Rs. 64.8 million, Rs. 1.5 million and Rs. 7.94 million respectively over 1970's figures of Rs. 113.32 million, Rs. 94.56 million and Rs. 39 million. Asian markets absorbed worth Rs. 45.2 million (Rs. 78.9 million in 1970). Shipments to U.K. grew to Rs. 158.8 million against Rs. 90.3 million in the previous year.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

NEW MACHINE TOOLS DEVELOPED

The growing internal and international demand for Indian machine tools has spurred the industry to take up the development and production of newer types of machine tools. Recently the manufacture of horizontal cold chamber die casting machines and rover plastic injection moulding machines has been taken up by the Hindustan Machine Tools Limited, Bangalore. The die casting machines will be in six models with a die locking force ranging from 160 tonnes to 1500 tonnes and the plastic injection moulding machines will be in seven models with a mould locking force of 100 tonnes to 1000 tonnes. The current demand for such machines is estimated to be between 40 and 50 numbers. The demand forecast by the end of the Fourth Plan (1973-74) for die casting machines is 65 per annum and in the case of plastic injection moulding machines it will be 420. HMT hopes to manufacture two more models during 1973-74 and 1974-75.

Hindustan Machine Tools has also developed a digital readout to make a precision job on the lathe accurate. This equipment marking the development of numerically controlled systems in the country has been designed and developed try HMT in collaboration with the Bharat Electronics Limited, Bangalore and the Central Machine Tools Institute, Bangalore.

In order to develop a series of modern machine tools, an international consortium has been set up with Hindustan Machine Tools Ltd. Bangalore and a company each from U.S.A., U.K. and Japan as constituents.

The machine tools developed by this consortium will be fabricated in India by HMT. In view of the cost advantage this arrangement for the manufacture of sophisticated machine tools for export to developed countries has been considered profitable.

The first design of a lathe approved by the consortium has been developed by HMT and the Central Machine Tool institute and put on the production line.

The other items developed by various manufacturing units include such tools as electro magnetic chucks for rotary grinder, carbide tool grinding and lapping machines with wheels up to 400 mm dia, universal nibbling machines with coordinate cutting attachment, universal punching, shearing, cropping and notching, machines with special tooling for beams and channels, snagging grinders with constant periphery speed, facing & boring lathes, plano millers, plano grinders, surface grinders, tool milling machines, copy milling attachment for vertical milling machines, lifting and table support device on medium duty shapers, universal table and tool lifting device on heavy duty shapers, 63 mm spindle horizontal boring machine, right angles milling attachment for milling heads on planners, plunge type facing and centering machine, ram turret milling machine with shaping, right angle and horizontal milling attachment, tracing attachment for ram turret milling machine, superficial hardness testing machines, impact testing machines, heavy duty dynamic balancing machines for rotors up to 3 tons, electronic balancing machines for small rotors, straight sided presses of 200 tonne capacity, guillotine shears of 5 mm x 1260 mm capacity, high speed straight aided presses of 63 & 100 tonne capacity, two point high speed presses of 100 & 250 tonnes capacity, single point straight sided press of 500 tonne capacity, press brakes of 250 tonne capacity, coil reels, coining presses, short piece turning machines-mini chucker, drilling machines-column, pillar and bench types, multispindle drilling machine-horizontal & vertical configuration, gear tooth rounding & testing machines, power hacksaw, automatic programme controlled unit pragmato, facing & centering machine, universal milling head, heavy duty engine lathes, production jig boring machines with numerical control, digital readout, machining centres, attachments for vertical turret lathe - 3 jaw hydraulic chuck, manually and hydraulically operated chuck (table), double axis hydraulic tracing attachment, mechanical swivelling pendent, centering device for turret head, extended height bed, accessories for super shaper, swivelling and tilting table, modified tool lifting mechanism, key-way cutting attachment, quadrant tool box, vertical turret lathe with power operated turret head, spiral double column electric planer, extend height bed for 36″ size VTL, Rigiturn lathe with 2000 mm between centres, 1″ dead length – bar chuck, bench testing centres 1100 x 250 mm, 1500 x 300 mm high speed threading machine, 3 jaw coventry concentric chucks – 18″ x 25″, centre lathe – 142 type, gear shaper cutters for helical gears, precision hobs, mechanical power press 75 to 150 tons, hydraulic guillotine shear 3200 mm xx 12 mm cap, hydraulic press brake – 500 tons, bar cropper – 350 tons, plate levelling machine with rollers, beam tender – 250 tons, mechanical eccentric presses – different sizes, hydraulic presses – different sizes, single spindle automatic lathe, auto feed surface grinder.

RUBBER PRODUCTION UP

Production of all categories of rubber during January-October 1971 amounted to 114,913 tonnes as against 104,184 tonnes produced during the same period of 1970. This is a rise of approximately 10.3 per cent. Compared to 6955 tonnes rise in the production of natural rubber consumption too recorded an increase of 3704 tonnes. Imports of rubber continued to be much lower in 1971 than the previous year. During January-October (1971) the import was of the order of 4378 tonnes as against 8866 tonnes imported in the comparable period of previous year.

OUTER HARBOUR AT VIZAG

Visakhapatnam will be one of the few ports in the world with berthing facilities for ships of 100,000 DWT and above, and will be the deepest harbour in the country when the outer harbour is completed.

The outer harbour will be a multi-purpose project which is also expected to provide for a fishing harbour and prevent sea erosion. The construction work on the project is scheduled to be completed by middle of 1974.

The main items of work in the outer harbour are dredging and reclamation, construction of breakwaters and ore berth, besides improving the capacity of mechanical ore handling plant.

The outer harbour formed by the construction of a set of breakwaters, will provide for a berth on the southern part to handle ore ships and a fishing harbour on the northern part. Besides an ore berth, there will be room for three additional general cargo berths for 60,000 DWT-ships.

The ore, brought from Bailadilla mines by trains, will be automatically unloaded on to 5 km conveyor belt which would take the ore directly into the ships.

OLEFINS PROJECT OF GUJARAT PETROCHEMICALS

The beginning of the third and final phase of the Gujarat Petrochemicals has been made with the laying of the foundation stone of the Olefins project by the Prime Minister of India recently.

The Gujarat Olefins Project, known as the Naphtha Cracker Project will comprise naphtha cracker plant (ethylene plant) butadiene extraction unit, pyrolysis gasoline hydrogenation unit and benzene extraction unit, involving a total investment of Rs. 319 million.

Plants of this project will produce 130,000 tonnes of ethylene, 33,000 tonnes of polymer grade propylene, 38,000 tonnes of chemical grade propylene, 21,000 tonnes of butadiene and 24,000 tonnes of benzene annually.

Based on these products, plants will be set up for the production of 24,000 tonnes of acrylonitrite, 20,000 tonnes of synthetic rubber, 40,000 tonnes of polyethylene, 20,000 tonnes of ethylene glycol, 30,000 tonnes of polypropylene, 12,000 tonnes of acrylic fibre and 30,000 tonnes of detergent alkylite. All these plants are in the process of implementation and are expected to go on stream a long with the olefins project.

The products of this complex will substitute scarce conventional materials like iron and steel, lead, zinc, tin and cane, some of which are being imported. Current imports of industrial fibres, such as cotton and wool will also be reduced. When the entire complex goes on full stream, the total annual saving by import substitution as well as export earnings is expected to be over Rs. 1000 million.

The naphtha cracker plant and other units in the complex will have integrated off-site facilities such as water treatment plant, stream boiler, power and fuel supply, plant air, instrument air, inert gas etc. In addition there will be feed stock, intermediate and product storage tanks, common flare facilities, common loading and unloading facilities, laboratory etc.

The facilities will also include elaborate effluent treatment arrangements where waste waters from the various plants containing hydrocarbons, phenol, spent caustic and other chemicals, acidic waste etc. will be suitably processed to bring down the harmful ingredients.

The first phase of the Gujarat Complex commenced in 1968 with the commercial production of benzene in the Udex Plant of the Gujarat Refinery.

The second phase was marked by the implementation of the aromatics project of the Indian Petrochemicals Corporation. The project, which was inaugurated in January 1970, is nearing completion and will be commissioned during this year, producing 24,000 tonnes of DMT, 21,000 tonnes of ortho-xylene and 2,500 tounes of mixed xylenes.

The xylene produced in the aromatics project will provide raw material for manufacture of polyester stable fibres and filament yarn, phthalic-anhydride, pesticides, drugs, pharmaceuticals and other important chemicals.

ERTILISER OUTPUT O INCREASE

In accordance with the policy to achieve self-ufficiency in fertilisers by 1976-77, the Government of ndia have taken steps to finalise the new projects and xpansion schemes of the existing ones.

The Madras Fertilisers have gone into regular roduction. Fertillzers & Chemicals Travancore Limited stage IV expansion is also now in regular operation. urgapur and Cochin projects are expected to go into roduction during the current year. These four units ill add about half a million tonnes of nitrogen to the xisting capacity.

Haldia project involving an outlay of about s. 890 million has been approved for implementation. t will have a capacity of 1,52,000 tonnes of nitrogen and 75,000 tonnes of P_2O_5. In addition, soda ash and methanol will be produced.

The expansion of Gorakhpur and Cochin factories has also been approved. The capacity of the Gorakpur project will be 54,000 tonnes of nitrogen in the form of urea. The Cochin Phase II expansion scheme will add a capacity of 485,000 tonnes of nitrogen and 115,000 tonnes of P_2O_5 per annum.

The Kota Fertiliser plant expansion envisages additional production of urea of about 90,000 tonnes per annum.

The Tuticorin and Mangalore fertiliser projects are also to be finalised soon.

WORK AT BOKARO STEEL PLANT

The first blast furnace of the Bokaro Steel Plant is expected to be commissioned in June this year. The expansion of the project from the 1.7 million tonnes stage to 2.7 million tonnes has been approved.

Along with the construction for the second stage, the Bokaro project would also go ahead with the erection of the fourth Blast Furnace and additional coke-oven batteries.

The construction of these Blast Furnaces and coke-oven batteries will pave the way for the 4-millio tonnes stage of Bokaro plant's construction.

ORE RESERVES LOCATED

About 155 million tons of additional reserves of coal have been located by the Geological Survey of India.

Out of the new coal reserves, north Karanpura in Bihar has the richest deposits of nearly 47 million tonnes. Notable achievements in this field include proving for the first time a 3–metre thick coal seam in Rajmahal coalfield, tracing of workable coal seams in Tivak Parvat, formation of a continuous length coal seam in Pharia at depth of 900 metres and finding of bivalve fossible shells in bore-holes in Daltonganj coalfied within Talcher, indicating marine transgression.

The Survey has also located rich minerals besides tapping fresh water reserves. Important finds are the location of over 33 million tons of rich deposits of copper mixes with lead and zinc, over 11 million tons of bauxite, nearly 400 million tons of new iron ore deposits and about five million tons of manganes ore. Other rich minerals include diamonds and new deposits of gold, nickel and phosphorite. About 1,000 metres of exploratory mining was completed to locate these deposits.

Geological survey of India has also started a project for locating phosphate deposits. Explorations are also on in Himachal Pradesh and Rajasthan for potash fertiliser mineral which at present is being imported. Another scheme submitted by the Department is for the sustained production of manganese ore in Orissa, Bihar, Madhya Pradesh and Maharashtra. Another area taken up for development is oil drilling.

A seismic survey of Arabian Sea and Gulf of Cambay to determine suitable locations has been taken up by the Oil and Natural Gas Commission.

CRASH PROGRAMME FOR SUNFLOWER

About five hundred acres would be put under sunflower seed multiplication programme in farms at Raichur, Hissar, Ludhiana, Suratgarh and Jetsar by the State Farms Corporation. The required quantity oilseeds for the programme has already been produced at the Raichur farm of the Corporation during 1971.

The crash programme envisages to put about 300,000 acres under sunflower in 1972. Large scale cultivation of sunflower in the country is expected to reduce the gap between supply and demand for edible oil.

Sunflower has certain advantages over other oil seeds in that its oil content is about 50 per cent. Besides it can be grown practically in all regions throughout year.

The State Farms corporation is specialising in the multiplication of new varieties of food as well as commercial crops.

MANUFACTURE OF HIGH PRESSURE VESSELS

The Bharat Heavy Plate and Vessels Factory at Visakhapatnam (Andhra Pradesh) is to manufacture high pressure vessels for the first time in India. The unit will supply two oxygen plants of 500 tonnes each to the Bokaro Steel Plant. The oxygen plants are estimated to cost Rs. 80 million.

COIR INDUSTRY

A PROFILE

India's annual production of coir is estimated at the level of 160,000 in terms of fibre and accounts for about 56 per cent of world production. The estimated production of various items of the coir industry in India is : coir rope-20,000 tonnes; coir products-25,000 tonnes; coir yarn other than those used for rope and products-99,500 tonnes, and coir fibre other than those used for making coir yarn-13,700 tonnes and curled coir-1500 tonnes.

In the bewildering variety of man-made fibres which compete with coir, price factor is the major safeguard for this product. Even among the natural fibres, varieties like hemp (including sisal), henequen and abaca and to some extent jute have settled down to specific utility and end-uses. Coir has, however, survived not only stiff competition but also in respect of wide possibilities of application.

The industry could be broadly divided into four sectors. The first sector is concerned with the retting of husk and preparation of fibre. There are about 23,000 retting units spread throughout the Kerala Coast. Then there is the hand spinning sector which comprises about 80,000 hand spinning households. The third sector is concerned with the spindle spinning of yarn. There are about 25,000 such units. The manufacturing sector has about 2200 units.

Coir fibre is extracted from the husks of 11 to 12 month old coconuts. The epicarp of the coconuts called coconut husks are sparated from the nut. These husks are soaked in water in order to soften and/or loosen the material that holds the fibres together. This process is called retting. The retted husks are taken out and washed to remove the adhering mud and slime. The outer skin is then peeled off. The retted husks are then beaten until the pith is separated from the fibres. The fibres are then washed, dried in shade and cleaned by willowing. The cleaned fibre is spun into yarn either by hand or with the help of spinning wheels. Coir yarn and fibre are used for the manufacture of mats, matting, rugs, carpets etc. These products are manufactured on looms. The operation is similar to pit loom weaving without fly-shuttle arrangement. When tufts are to be prepared it is done by transforming either the warp or the weft, or by inserting fibre by hand.

Coir is a versatile fibre. Floor coverings, door mats, wall carpets, cricket pitch mattings, gymnasia mats, upholstery materials, acoustic and heat insulating materials, filters, fenders, etc. are some of the varied end products made of coir.

Coir's remarkable durability under moisture and humid conditions is well recognised. Its high resistance to microbiological attack is a valuable property. Though free sodium deposited on the fibre tends to soften it, its essential quality is toughness.

Coir mats are available in oblong, half oval and in many other shapes. Coir fibre mats are a speciality of the industry. They are valued for their superior qualities and designs. Large size fibre mats are also used to great advantage in offices and hotels. Car mats also are manufactured from coir.

Where the entire floor has to be covered a coir matting is useful. In the from of carpets, they can form a stretch in the middle of the hall or they may provide wall to wall cover. Coir mourzouks are suitable where a heavy and durable rug is required. A unique advantage of coir floor coverings is that dust does not accumulate on the surface. Another use to which coir matting is put is for sand stowing in mines.

Coir wall carpets are delicately woven from fine coir fibre. Being products of deft craftsmanship these will add elegance to any decor, contemporary or conventional. Coir wall carpets are woven in beautiful and artistic designs and can be woven to any specification. Pile carpets in colourful designs are also in the production stream.

Sports goods such as cricket pitch matting, gymnasia mats, wrestling mats, golf tea-mats, billiard dart board surrounds, etc. are also manufactured out of coir.

Fine ropes are made from coir. They are largely used in ships because they do not get spoiled by contact with sea water, unlike ropes made of other hard fibres.

Coir is also used for various miscellaneous purposes. It finds use in oil filters, ship fenders, camouflage nets, dumping mats and also for acoustic and heat insulation purposes.

Coir yarn is used for a variety of agricultural purposes. In agriculture, coir yarn finds its most important use in hop cultivation. Coir yarn is used as binder and baler twines in agriculture and also for scaffolding. Coir yarn has found another use in the manufacture of olive oil filters, which earlier used to be manufactured from coir fibre previously.

Another comparatively recent innovation of the industry is the rubberised coir materials. In India the beginning of the production on commercial scale of such articles using coir fibre and rubber latex was made in 1963. The products of the defibering units are the raw materials for the rubberised coir industry. Annually about 600 tonnes of rubberised coir goods are manufactured in the country.

The major items of production are seats for buses, cars and railway coaches, bed mattresses, pillows, cushions, carpet underlays, filter pads, etc. The advantage of rubberised fibre over ordinary fibre stuffing is esssentially one of quality. The rubberised coir while having all the advantages of foam rubber has price advantage.

With the increasing demand for quality coir products, mechanisation is being gradually introduced. Modern powerlooms are now being utilised for the production of a portion of coir matting. Similarly, mechanisation of the spinning sector is also being undertaken. The advantage of employing spinning machines is that a continuous length of yarn of uniform twist and better appearance could be produced, thus eliminating the need for splicing short lengths.

Defibering and decortication machines are now in use in the production of fibre from unretted coconut husks. The defibering machine are capable of separating bristle fibre from mattress fibre while the decorticating machine produce mixed fibre.

Besides machanisation, research in finding new uses for coir in such fields as acoustic and heat insulatian has also been undertaken. Continuous experiments are conducted in bleaching, dyeing and softening of the fibre, adoption of latest finishing methods etc. Evolving new designs is also a continuous activity.

To ensure export of quality products, compulsory quality control and pre-shipment inspection has been introduced in the case of coir door mats, gymnasia, sinnet and corridor mats. A variety of coir yarn has also been brought under the inspection scheme.

Coir industry has grown as essentially an export oriented one. As much as 64 per cent of the industry's exports in 1970-71 consisted of coir yarn. Coir door mats and mattings accounted for a little over 27 per cent. The rest of the exports was shared by coir rugs and carpets, coir fibre, cordage and ropes, curled coir and others. Nearly 521,200 quintals of coir yarn and products valued at Rs. 138.25 million were exported in 1970-71. This consisted for 333,471 quintals of coir yarn at Rs. 76.45 million, 142,771 quintals of coir mats and mattings at Rs. 47.65 million, 35,144 quintals of coir rugs and carpets at Rs. 12.85 million, 4368 quintals of coir fibre at Rs. 750,000, 2,638 quintals of coir cordage and ropes at Rs. 434,000, 2,660 quintals of curled coir at Rs. 334,000, 107 quintals of other types of coir at Rs. 38,000 and 27 quintals of rubberised coir goods at Rs. 24,000.

The East and West European countries like Belgium, Bulgaria, Czecholsovakia, France, German Democratic Republic, Hungary, Italy, Netherlands, Poland, Rumania, U.K. and Yugoslavia, are the main markets for coir yarn. U.S.A. is also a major market for this item. Coir carpets and rugs of a value of Rs. 12.02 million were sent to USSR alone in 1970-71.

Besides Australia, Canada, Japan and U.S.A., the East and West European markets were again the main buyers of Indian coir mats and mattings.

During the first 8 months of 1971-72 (April-November 1971) overseas demand for India's coir mats and mattings has registered an uptrend. Their exports stood at Rs. 39.36 million as against Rs. 34.5 million in the same period of 1970. World demand for Indian coir mats has particulary grown up to Rs. 34.5 million against Rs. 30.4 million.

Curled coir is another item for which export demand has gone up to Rs. 336,280 from Rs. 197,370. While export of coir rugs and carpets was more or less maintained, coir fibre, coir ropes have also been fairly active in the export trade.

The improved export performance of coir mats and mattings in recent months was mainly due to better exports to destinations like France, U.K. and Sweden. There was improvement in the offtake of the East European regions too.

PROGRESS IN SCIENTIFIC RESEARCH

HYBRID TAPIOCA VARIETIES

Three new hybrid varieties of tapioca has been released for commercial cultivation in the current season (February-March) in the Southern States. These are H-97, H-165 and H-226.

These three varieties were found suitable by the Central Tuber Research Institute, Trivandrum after extensive multilocation trials in close collaboration with the Kerala Agricultural Department. The seed of these three hybrid varieties which is now being multiplied in special demonstration plots will be released to selected farmers by the State Agricultural Department for further multiplication and propagation along with necessary guidance on the package of practices to be followed.

The hybrid H–97 is a cross between a local variety and a Brazilian selection. This has high-yield ranging from 25 to 40 tonnes of tubers per hectare and about 30 per cent starch content. The hybrid is branched, medium tall and responding well to fertilisation; reaching maturity in about ten months time. Because of the high-yield which is double the local popular variety and also of the high starch content, this variety is ideally suited for the starch industry.

The second variety H-165 is derived from a cross between two local varieties. This yields about 35 to 45 tonnes per hectare and is an early maturing variety. It is unbranched and therefore facilitates more plants per unit area. Since this is a short duration variety multiple cropping is possible.

The third hybrid H-226 is derived from a cross between a local variety and a Malayan type. This variety is also a good yielder-30 to 40 tonnes per hectare having light purple rind and creamish flesh tubers. All the three varieties respond well to high fertilisation and also show resistance to disease and pest.

NEW PRODUCTS AND IMPORT SUBSTITUTION

Six new capital equipment for manufacture and testing of electronic components have been developed in the country. These are ; dual range stage charge fine wire welder, athermo compression wire bonder, a sequential component automatic tester (SCAT), a high stability precision three zone twin furnace stack; an ultrasonic power supply and timer and a three-zone temperature controller.

Dual range storage charge finewire welder is a micro welder used for non-destructive welding of fine wires of gold, copper, steel etc. of guages of 18 S.W.G. and blow down to 0.5 mil. It has two energy level ranges of 0.9 watt-seconds and 0.45 watt-seconds respectively, both continuously variable. Thermo-compression wire bonders are used for the bonding of microfine wires ranging from 0.7 mil. to 3 mil. in diameter to transistor headers and similar other applications. Precision bonding is achieved by a highly accurate micro-manipulating system coupled with a motorised bonding tip movement and a solid state high accuracy temperature controller.

Sequential component automatic tester is capable of automatically testing electronic components such as transistors, diodes and resistors for a number of DC tests under a variety of programmable conditions. It can also bin or sort out components into different categories as desired through peg board matrix programming. The equipment can perform up to 20 tests and bin up to 11 within a period of half a second.

High stability precision-three-zone twin furnace stack are used for processing silicon wafers in the manufacture of transistors. There are two complete cartridge assemblies in each furnace. Each cartridge is controlled by a solid state three-one temperature controller which maintains the temperature inside the cartridge within plus or minus 1/2 degree C at any set point between 400 degrees C and 1400 degress C.

In the manufacture of transistors, precision and reliable bonding is required between the pads on the silicon chip and bonding wire leads. This delicate bonding is done by ultrasonic means, using an oscillator at 60 HZ. For precise bonding the output of the ultrasonic power oscillator and the duration for which the power is applied are controlled. The ultrasonic power supply and timer has dual channels, having separate time and power control facility operating from a single oscillator and power amplifier.

Three zone temperature controller is a highly precision temperature controlling device intended for operation from 400 degrees C to 1400 degrees C. Precise temperature control is obtained by means of three zone master-slave control technique. The equipment incorporates pre-check lights and excess temperature alarm to give visual and audio indication of failure.

The development of these equipment is expected to save foreign exchange of about Rs. 6.5 million per annum.

These capital equipment have been developed by M/s. Continental Device (India) Ltd., 18, Boulevard Road, New Delhi-6. This firm has been awarded a gold shield for these inventions by the Inventions Promotion Board.

PRAWN SHELL TO GIVE FINISH TO TEXTILES

The Central Institute of Fisheries Technology, Cochin, have in collaboration with Cotton Textile Research Centre, Bombay developed an industial product viz. chitosan. The product derived from prawn shell waste is of immense use to the textile industry. After extensive trials in the textile industry, chitosan has been found to be good for imparting a permanent organdy type finish to cotton fabrics.

Preparation of chitosan from prawn shell wastes offers great scope for the economic utilisation of the hundreds of tonnes of such wastes discarded by the prawn-processing factories in India currently.

The process involves the extraction of protein and mineral contents in prawn shells and the conversion of the resulting chitin into chitson by controlled hydraulysis. The yield of chitosan is about eight per cent of the fresh wastes.

Roughly 30,000 tonnes of prawn shells are raid to be available annually from prawn-freezing and canning factories. A part of these is used as manure in some areas, but a major portion is simply discarded.

Other researches by the institute to relieve the pressure on the prawn shrimp industry and to make it a profitable concern were : canning of sardines in "natural pack" in brine, instead of oil and the economic utilisation of trash fish in the preparation of fish soup powder, protein concentrate, high energy instant food and bacteriological peptone.

The institute had already standardized brine canning. The fish protein concentrate had been successfully tested, including in overseas laboratories.

COBALT RADIATOR TO PRESERVE INDIAN FISH

The first of its kind in India, a cobalt radiator unit is to come up soon at Cochin for the preservation of fish. The unit is to be started by the Bhabha Atomic Research Centre, Bombay which received it from the International Atomic Energy Agency. The radiator unit will function under the supervision of the Central Institute of Fisheries Technology.

By the radiator process, fish can be preserved up to 20 days. Research and experiments conducted on the process have proved that it does not pose health hazards.

SELECTED PHYSICAL TARGETS AND ACHIEVEMENTS

Item	Unit	1969–70	1970–71	1971–72	(Fourth Plan Target) 1973–74
Agriculture and allied sectors					
Foodgrains	Million tonnes	99.50	107.82	112.00	129.00
Oilseeds	-do-	7.73	9.12	9.50	10.50
Sugarcane (gur)	-do-	13.78	13.19	13.70	15.00
Cotton	Million bales	5.23	5.56	6.20	8.00
Jute	-do-	5.65	4.91	6.40	7.40
Fertilizer consumption. :					
Nitrogenous (in terms of N)	Million tonnes	1.36	1.49	1.78	3.20
Phosphatic (in terms of P_2O_5)	-do-	0.42	0.46	0.64	1.40
Plant protection	Million hectares	34.61	43.20	50.76	80.00
Irrigation					
Potential (cumulative gross)	-do-	19.15	19.75	20.39	23.30
Utilization (cumulative gross)	-do-	17.14	17.68	18.36	20.90
Installed capacity	Million Kilowatts	15.44	16.49	17.67	23.20
Pumpsets energised	'000' Nos.	1354.00	1629.00	1959.00	2327.00
Transport and communications					
Railways : traffic originating	Million tonnes	207.90	199.00	208.00	265.00
Major ports : traffic handled	-do-	54.60	56.00	61.00	77.00
Shipping tonnage	Million GRT	2.30	2.40	2.50	3.50
Health					
Hospital beds	'000' Nos.	262.40	266.00	270.00	281.60
Family Planning : Sterilisation	Million Nos.	1.42	1.28	—	—
IUCD insertions	-do-	0.46	0.46	—	—
Petrochemicals					
DMT	Million tonnes	—	—	—	20.00
Caprolactum	-do-	—	—	—	23.00
Acrylonitrite	-do-	—	—	—	16.00
Synthetic rubber	-do-	28.60	30.00	31.00	70.00
Industry and Minerals					
Steel ingots	Million tonnes	6.43	6.10	6.75	10.80
Finished steel	-do-	4.80	4.47	5.60	8.10
Alloy & special steel	'000' tonnes	140.40	200.00	200.00	220.00
Aluminium	-do-	135.00	168.70	179.80	220.00
Copper	-do-	9.80	9.33	9.50	31.00
Zinc	-do-	23.70	23.40	30.80	70.00

Metallurgical & other Heavy Engg. Machinery	'000' tonnes	18.00	20.00	25.00	75.8
Agricultural Tractors	'000' Nos.	17.10	20.00	35.00	50.00
Turbines (Thermal)	Million KW	0.32	—	—	1.30
Turbines (Hydro)	-do-	—	—	—	1.65
Production of Nitrogenous fertilizers (in terms of N)	'000' tonnes	715.60	930.30	1130.00	2500.00
Production of Phosphatic fertilizers (in terms of P_2O_5)	-do-	221.50	229.00	300.00	900.00
Sulphuric acid	-do-	1129.00	1116.00	1350.00	2500.00
Coking coal	Million tonnes	17.00	18.80	19.00	25.40
Iron ore	-do-	28.00	28.00	30.00	51.40
Production of crude petroleum	-do-	6.70	7.00	7.50	8.50
Refining capacity (in terms of throughput)	-do-	16.20	18.00	19.00	26.00
Machine tools (organised sector)	Rs. million	272.00	230.00	420.00	650.00
Ball and Roller bearings	Million Nos.	14.00	18.20	18.00	20.00
Power Driven Pumps (Organised sector)	'000' Nos.	333.00	280.00	400.00	450.00
Diesel Engines (Stationery)	-do-	133.40	67.40	70.00	200.00
Commercial Vehicles	-do-	35.50	41.50	45.00	85.00
Electric transformers above 33 kv	Million Kv	2.50	3.00	4.00	6.40
Electric transformers 33 kv and below	-do-	3.80	6.50	7.00	5.50
Electric Motors above 200 HP	Million HP	0.20	0.30	0.40	0.68
Electric Motors 200 HP and below	-do-	2.42	3.00	3.50	2.72
Steel castings	'000' tonnes	46	52	75	225
Steel Forgings	-do-	60	69	80	220
Bicycles (Organised sector)	'000' Nos.	1914	2084	2300	3200
Sewing Machines	-do-	327	235	380	600
Electric fans	-do-	1552	1720	2000	3000
Storage batteries	-do-	927	1000	1100	1800
Radio Receivers	-do-	1749	1830	2250	3800
Automobile tyres	Million Nos.	3.99	4.15	4.50	6.00
Newsprint	'000' tonnes	38.92	40.00	55.00	150.00
Paper and Paper Board	'000' tonnes	724.00	756.00	800.00	850.00
Cement	Million tonnes	13.81	14.36	15.50	18.00
Cotton Cloth (Mill sector)	Million metres	4192.00	4200.00	4300.00	5100.00
Jute Textiles	'000' Tonnes	944.00	1050.00	1100.00	1400.00
Sugar	-do-	4260.00	3765.00	3400.00	4700.00
Village and Small Industries					
Production of Handloom, Powerloom & Khadi Cloth	Million Metres	3600.00	3760.00	3810.00	4250.00
Raw Silk	Million kg.	2.30	2.85	3.00	3.00

(Source : Planning commision, New Delhi.)

GLASS AND CERAMICS

During the last 20 years, production in the important sectors of the glass industry has made substantial headway. Sheet glass for instance, improved from 0.95 million square metres in 1950 to 8.1 million square metres in 1960 and 41.1 million sq. metres in 1970. During these years the output of glass containerware rose from 52,000 tonnes to 107,000 tonnes and 200,000 tonnes respectively while that of glass shells increased from 10 million pieces to over 46 million pieces and 100 million pieces respectively. Production of vacuum flasks registered a record improvement from 1.5 million pieces in 1960 to 12.6 pieces million in 1970.

To reduce the dependence on imports of Fibre glass a unit was set up at Thana (Maharashtra) which has a capacity of 850 tonnes per annum for fibre glass in the form of wool, 400 tonnes per annum for continous filament fibre and reinforcement and 75 tonnes per annum for glass tissue. There is now a proposal to make filament fibre in India from the melt which is expected to materialise by 1972. This method will do away with the marbles presently being imported.

With the addition of one unit during 1970 the number of units, in the glass industry is now 47, with a combined capacity of 425,000 tonnes. An additional capacity of 147,000 tonnes was approved during 1970.

A striking feature of the industry has been the switchover in the field of glass container ware from semi-automic methods of production to the adoption of latest automatic machines. With the installation of balancing equipment the manufacturing units increased their capacity utilization to 78 per cent in 1970.

Some of the sheet glass producers have changed over from conventional Forecault Process to improved PPG process for the manufacture of quality sheet glass for meeting the excating requirement of the processing industries like safty glass and mirrors. A unit licensed to manufacture glass by penvernon process is also coming up in the production stream. An existing unit has also been allowed to change to this process.

Aside from the increase in production and improvement in techniques of manufacture a number of new items have been added to the production stream. To mention a few, they are glass mineral wool, fibre glass and its products like glass cloth, helmets, insulation tapes, safety glass of both laminated and toughened varieties, coloured sheet glass, wired and figured glass, optical glass, thermometers of all types and scientific glassware conforming to international standards. In 1970, ballotini beads used as reflective road signs, in markings for textile decoratives, grinding material, in paint manufacture, glass reinforced plastics and for cleaning moulds were introduced in the production stream. The manufacture of lead glass tubing for electrical lamp industry was commercialised. This would make the country self sufficient in this item.

The new items that are likely to be produced on commercial scale in the near future are heat-resisting kitchenware, crystalware, rough blanks and various products of fibre glass. Steps are also being taken to set up manufacturing facilities for television bulbs.

The glass industry is one of those which do not largely depend upon foreign technical know-how. The raw materials of required quality are available indigenously, and the industry is fast moving ahead towards self-reliance.

With a well established base the glass industry has improved its export performance in recent years. From Rs. 13.2 million in 1969-70 the foreign ezchange earnings of glass and glassware improved to Rs. 17.5 million in 1970-71. In the latter year glass in several forms fetched Rs. 7.2 million and glassware Rs. 10.3 million.

Among the varieties of glass exported are window glass, plate glass, wired glass sheets, brick tiles and other construction materials of pressed or moulded glass or laminated safety glass, glass mirrors, glass wool and glass fibre. Window glass was mainly imported by the Sudan, Malaysia, U. S. A. and Singapore. About 332,000 sq. metres of window glass was exported to these and other countries at a value of Rs. 1.4 million. Iran and Malaysia were the major buyers of plate-glass while Singapore, Sudan and Australia were the leading markets for wired glass sheet. Nearly Rs. 1 million worth of laminated sheets and plates as also plate-glass were supplied among others to Afghanistan, Singapore, Malaysia, Iraq and Mauritius. Glass mirrors found markets in Afghanistan, Bahrain Islands, Dubai, Hongkong, Muscat, Nepal, South Yeman People's Republic and Saudi Arabia.

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In the glassware variety exported, glass bottles and phials are important having fetched an export value of Rs. 2.7 million. Leading purchasers were the A. R. E. Afghanistan, Ceylon, Bahrain Islands, Kuwait and Qatar. Vials for injectible needles were supplied to the A.R.E. and Philippines. Glass inners for vacuum flasks were exported in substantial quantities to Australia and U.S.S.R. India-made glass tableware and other articles for household, hotels and resturants became popular in Nepal, U.S.A., U.K. Sudan, Afghanistan and Ceylon. In addition to these categories, a variety of laboratory glassware including ampoules, glass tubes for colour comparison and microscope slides were exported to several markets far and near.

Glass bangles supplied by the Indian firms have recenrtly caught the imagination of the world markets. U. S. A., Malaysia, Afghanistan, Dubai and the U. K. are among the principal buyers. Glass beads, imitation pearls, imitation precious and semi-precious stones made of glass are popular in the U. S. market particularly.

Ceramics

The variety and designs of ceramic products are multiplying at a fast rate. They are generally classified under broad groups such as sanitaryware, crockery, stoneware, tiles, insulators, etc. The use of ceramics has spread vastly in the fields of generation and transmission of power, plumbing of massive modern buildings, engineering, rocketry, electronics etc.

In almost all these products the country has achieved self-sufficiency. There are about 300 units in the country which are manufacturing different kinds of ceramic products. In the organised sector, leaving aside 43 units which make refractories there are 7 units for H. T. insulators, 13 for L. T. insulators, 13 for sanitary ware, 4 for glazed tiles, 17 for crockery making and 11 for stoneware pipes and containers.

The ceramic industry had made satisfactory progress. Over the years, production of sanitary ware increased form 11,000 tonnes in 1966 to 13,000 tonnes in 1970, while output of crockery went up from 14,700 tonnes to 16,100 tonnes. Output of glazed titles improved to 19,700 tonnes in 1970 from 8,100 tonnes in 1966. H. T. insulators rose from 8,200 tonnes to 17,500 tonnes while L. T. insulators reached 2,200 tonnes from 1800 tonnes.

Ceramics are mostly made of clay or some naturally occuring earth which differs in physical property and chemical composition. The other basic raw materials are feldspar, quartz, hydrated gypsum, etc. There are sufficient deposits in the country of almost all these materials. The discovery of immense resousces of high quality china clay at Neyveli has helped in the manufacture of high tension insulators, sanitaryware, crockery etc. Soda ash, wax, plaster of paris, sodium silicate and zinc required by the ceramic industry are also available from within the country.

The quality, shape and design of Indian ceramic products are comparable with those from foreign countries. This is particularly so in the case of sanitaryware and fittings and crockery. The introduction of pre-shipment inspection scheme has helped to ensure the adherence to the international specifications and standards.

The export value of major ceramic products during 1970-71 was: pottery Rs. 192,000, construction materials (bricks, pipes and tiles) Rs. 1.2 million, sanitaryware Rs. 916,000 and porcelain insulators Rs. 690,000.

African countries like Zambia, Mauritius, Uganda, Tanzania, Kenya and Asian countries like Nepal, Ceylon, Malaysia, Afghanistan, Thailand, Burma, Iraq, and Kuwait, are the main buyers of our pottery, construction materials like bricks, tiles, and pipes, sanitaryware like sink, wash basins, insulation equipment and articles made of ceramics. □

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TAIWAN EXPORT ORDER EXECUTED

M/s. Integral Coach Factory, Madras-38 has successfully executed an export order received from the Taiwan Railway Administration for the supply of 113 passenger cars (Gauge 1067 mm) with spare parts valued at Rs. 38 million.

The delivery was completed in October 1971. The execution of the order within the limited time (the order was received in October 1970), especially when the requirements of the purchaser incorporated many sophisticated arrangements not in use on the Indian railways, proved to be an exacting job. Detailed designs were made out on top speed and a team of Design Engineers were sent to Taiwan to obtain the customer's approval. Procurement of stores from both indigenous and foreign sources proved to be equally difficult. All the same, the delivery schedule could be kept up.

The Integral Coach Factory, which is one of the largest and a most modern single producer of the railway coaches in the world, has already made a mark earlier as an important exporter of rolling stock. In 1968, 66 bogie trucks were supplied by them to the Burma Railways. Closely followed the export commitments of 100 bogies to Taiwan Railway Administration and 45 bogies to the Royal State Railways of Thailand.

The range of products manufactured in the Factory widely varies—both in gauge and in type—from the 3rd class coaches (the most basic in design) to the complex electric multiple unit motor coaches, diesel rail cars and luxury deluxe air-condition coaches. The factory has built coaches for the fastest train in the Indian railways, namely, Rajdhani Express, now running between New Delhi and Calcutta. The factory has also built Electric Multiple Units for suburban sections of Madras, Bombay and Calcutta. In order to meet the increasing demand for more coaches the production in the Factory is to be stepped up from the current turnout of 650 coaches per annum to 750 coaches from 1973-74 onward in a phased manner.

NEWLY DESIGNED LATHES TO U.S.A.

The first batch of 50 newly designed lathes are to be exported to the U.S. market by April this year. The new lathes have higher speed and additional horse power than the normal ones and these are the features that attracted the American customer M/s. School Tools (Inc), Minneapolis. The lathes are to cost about 30 per cent less than the prevailing market rates in the U.S. market.

The Indian firm which is to supply the lathes to U.S.A., M/s. Mysore Kirloskar Ltd., had also received orders for the supply of six lathes from Canada.

India's total exports of metal working lathes amounted to Rs. 8 million in 1970-71. Of these, centre lathe exports were about Rs. 2.5 million mainly supplied to Australia, Canada, New Zealand, Netherlands, Ceylon and Malaysia. Multi-tool production lathe were also exported to U.S.A., Ceylon and German Federal Republic. Among the purchasers of other categories of metal working lathes, U.S.A., Yugoslavia, Netherlands, Thailand, Ceylon, and German Federal Republic were prominent.

EXPORT TRADE IN TISSUE PAPER

Total exports of paper and paperboard from India during 1970-71 was of the order of Rs. 39.37 million. The major varieties exported were printing and writing paper in rolls and sheets, kraft paper and paper board, cigarette paper in bulk rolls or sheets and machine-made paper and paper board in finished form. The export of tissue paper was mainly effected to Ceylon, Malaysia, Singapore, Afghanistan and Kenya.

M/s. Tribeni Tissue, 24B, Park Street, Calcutta succeeded in exporting tissue paper to the tune of Rs. 7.16 million in 1971. Their export performance would have been higher but for the lower offtake by the Arab Republic of Egypt. The export success of the firm was mainly due to their successful efforts to identify new markets abroad and their competent after-sales-service.

The company's efforts to develop jute fibre as a substitute for the traditional raw material proved beneficial.

SALT TO UGANDA

A delegation from the State Trading Corporation of India which visited Uganda has recently secured a contract for the supply of 105,000 tons of salt over a period of three years.

India exported 56,000 tonnes of common salt valued at Rs. 2.56 million during April-August, 1971. The major importers were Nepal, Korea Republic, Singapore and Thailand. In 1970-71, 104,342 tonnes of the product worth Rs. 5.14 million were exported to Nepal (Rs. 2.22 million), Singapore (Rs. 1.19 million), Korea Republic (Rs. 0.6 million), Japan (Rs. 0.6 million) and the U.K. (Rs. 0.2 million). Other importers were Tanzania, Abu Dhabi, Maldive Islands, Qatar and Uganda. Ugandan imports were only Rs. 43,000 (1000 tonnes).

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TEXTILE KNOW-HOW TO REPUBLIC OF EGYPT

The Ahmedabad Textile Industries Research Association (ATIRA) has recently licensed to the Arab Republic of Egypt technical know-how for the ATIRA permanent-press process for cotton-polyester blend fabrics. Under an agreement the Association will provide the know-how for the process including quality control, procedures and training facilities for technicians and will send its specialists to that country. The ARE will pay the Association £ 10,000 as know-how fee.

The process developed by ATIRA in 1968 has been in regular use by certain exclusive licencees in India.

AWARDS FOR HANDICRAFT EXPORTERS

Eight Awards for outstanding export performance in different branches of Indian handicrafts during 1970-71 were presented recently. Of the eight Awards, three are for the highest export performance in art metalwares, one in wood artwares and four for exporting other varieties of handicrafts.

The National Award for outstanding exporters in handicrafts was established last year and eight exporting firms received the award in that year.

In addition, Awards to ten master craftsmen and certificates of Merit to eight others were given in recognition of their traditional skill, imagination and craftsmanship. The awards cover such crafts as wood carving, ivory carving, thewa work, carpet weaving, brocade designing, batik painting, sandalwood carving work, bronze bead casting, brass engraving, shawl weaving, tie and dye crafts, lacquerware, horn work and dhoka metal craft.

M/s. P & S Export Corporation, New Delhi who received the National award for outstanding export performance for the second time in succession, is a major exporter of artmetal ware. In 1970-71, their exports of the artmetal ware alone touched Rs. 2.68 million, against Rs. 1.94 million in the preceding year. Brassware is the major item accounting for about 90 per cent of their total overseas sales. The Corporation's efforts in the creation of new designs in brass in tune with the markets of the U. S. A., Canada and Scandinavian countries prove thei watchful understanding of the rapid changes and demands abroad. The total export performance of the firm was Rs. 2.88 million in 1970-71 as against Rs. 2.11 million in the preceding year.

M/s. B. Karam Chand Payaralal, Moradabad (U. P.), another recipient of the national award have introduced to their market a number of new designs and items in brassware which alone accounted for Rs. 2.43 million in 1970-71 as compared to Rs. 1.69 million in 1969-70. The total export performance of the firm was Rs. 2.7 million as against Rs. 1.97 million in the respective years. Their supplies have registered a steady improvement to West Germany, the U. K., the U.S.A., Singapore, France, Canada and Africa.

Another recipient of the award were M/s. Paramount Trading Corporation, Moradabad who effected growing supplies to West European Markets, the U. S. A., Canada as also to Malaysia. Their brassware exports in 1970-71 were worth Rs. 2.35 million as compared to Rs. 1.9 million in the previous year. Their total exports of handicrafts amounted to Rs. 2.83 million and Rs. 2.13 million in the respective years.

Wood artware was the major item of export of M/s. Datta Cottage Industries of India, New Delhi who received the award. The firm's export supplies of wood artware accounted for Rs. 0.98 million out of their total exports of Rs. 1.4 million in 1970-71. The comparable figures for 1969-70 were Rs. 0.8 million and Rs. 1.19 million.

M/s. Hansa Agencies, Jullundur received the award for the second time in succession for their export performance in a variety of handicrafts whose export value was Rs. 0.73 million in 1970-71 as compared to Rs. 0.54 million in 1969-70. They have introduced a number of new and less known crafts particularly in the U. S. market.

M/s. Harilelas, Bombay is yet another major export concern to receive the award in succession for the second time. They have succeeded in constantly introducing new items into the markets of the U. S. A., Hongkong, Japan, West Germany, Canada, Africa, the U. K. and Australia. The firm's export performance accounted for about Rs. 0.5 million in 1970-71 which was more than double the value of their exports in the previous year.

With specialisation in marble exports, M/s. Marble Emporium, Agra captured Rs. 4.7 million worth of world markets in 1970-71. This was an improvemet over their export value of about Rs. 0.42 million in the preceding year.

M/s. Asia Crafts, Srinagar is one of the leading exporters and producers of woodware and papier mache in India. They received the national award for their contribution to the export growth of these products. They have earned Rs. 0.2 million in 1970-71 from sales to U. S. A., West Germany, Australia, the U. K. and Japan.

Speaking at the occasion of the presentation of the awards, the Minister of Foreign Trade mentioned that during the last few years the export of handicrafts increased rapidly touching a level of Rs. 800 million per annum at present. Nearly a million and a half craftsmen are engaged in the practice of their heriditary skills and are making a significant contribution to the progress of the handicraft sector. The All India Handicrafts Board helped raise the status of both crafts and craftsmen and brought about several notable achievements towards that development of handicrafts in the form of introduction of improved tools and techniques, evolution of new designs and improvement upon the quality of craftsmanship by introducing schemes for training under master-craftsmen. The President of India who presented the awards expressed appreciation for the efforts of exporters in expanding sales of Indian handicrafts abroad, and stated that there were still many lesser known crafts that would require to be identified and developed.

EXPORT ORDER FOR TRANSMISSION TOWERS

The major export orders for the supply of transmission towers received by M/s. Kamani Engineering Corporation Limited, Nicol Road, Ballard Estate, Bombay-1 (BR), during 1971-72 (up to the end of October 1971) totalled Rs. 164.5 million.

The largest order received by them was from Libya at a value of Rs. 66 million. Next in importance was export deal finalized with Iran at a value of Rs. 61 million. Earlier in the year Thailand sought import of the towers from the firm at a value of Rs. 30 million.

A recent order received from the U. S. A. in October 1971 was worth Rs. 4.6 million while the Tehran ring order received in mid-October was worth Rs. 2.9 million.

It may be recalled that some details of the major export orders received by the above firm were published in this weekly dated January 8, 1972. The above is a more uptodate picture of the export achievements of the firm.

EXPORT PERFORMANCE AND POTENTIAL

CALL TO DEVELOPING NATIONS

The President of India, Mr. V. V. Giri, has recently called the developing countries to reorient their trade policies in the context of growing uncertainties for adequate inflow of external assistance. He deplored that in spite of the buoyancy in world exports, the share of the developing countries in the trade was declining. It was imperative that developing countries should formulate growth oriented policies for progressive increase in exports towards the ultimate aim of self-sustained growth as early as possible, he said.

Addressing the participants of the International programme on 'Trade Policy and Export Promotion' conducted by the Indian Institute of Foreign Trade, in which number of developing countries participated, the President expressed satisfication at the persistent efforts of the developing countries under the auspices of UNCTAD, had ultimately achieved a breakthrough in the form of Generalised System of Preferences being introduced by the developed countries in favour of the developing countries. He was concerned however that the non-tariff barriers and the restrictive andinward looking trade policies of the developed countries might dilute the potential benefits of GSP for the developing countries.

SHARE OF DEVELOPING COUNTRIES IN WORLD EXPORTS

The share of the developing countries in the total world exports of $ 278,600 million declined to 19 per cent in the first half of 1971, according to the ECAFE

Secretariat. On the other hand, the developed countries were able to maintain their share of over four-fifths i.e. 81 per cent in this period. The developing countries continued to register a very rapid rate of export growth - 15.6 per cent as compared with 10.7 per cent recorded by the developing countries. Consequently the rate of expansion of world exports reached 14.6 per cent as nearly identical with the 14.5 per cent of 1969. The average growth rate during the three-year period 1968-70, over that of 1967 was also 29 per cent - 30.5 per cent for the developed countries and 22.6 per cent for the developing countries.

Exports from EEC and other West European countries registered rapid rates of expansion - 17 per cent and 18 per cent respectively. For North America the figure increased substantially from 9.6 per cent in 1969 to 14.7 per cent in 1970. Among the developing countries, Latin America enjoyed the highest growth rate of exports - 11.7 per cent in 1970 as compared with 9.4 per cent in 1969. African countries, in contrast, with their 16.5 per cent export expansion rate of 1969 registered only 11 per cent in 1970. The export of the developed ECAFE region witnessed another year of growth at 9 per cent in 1970 as against 8.7 per cent in 1969. Developing Asian countries recorded a rate of 10.6 per cent in 1970 and their share of world exports dropped from 9.2 per cent in 1969 to only 8.8 per cent in 1970. The share of developing Asian countries in total world exports has thus continued to decline.

EXPORT PERFORMANCE OF PURE SILK FABRICS

In the first eleven months of 1971, total exports of pure silk fabrics, both mulberry and tasar - stood at Rs. 63.8 million. The mulberry silk variety fetched Rs. 53.8 million and was mainly supplied to non-traditional markets including West and East European countries and U.S.A. West Germany was the top importer of mulberry silk fabrics at a value of Rs. 13.48 million. The traditional markets of Asia and Africa absorbed Rs. 12.7 million worth of these fabrics of which Malaysia and Kenya were the leading buyers. West Germany, France and Italy were the major markets for the tasar silk fabrics in the period under review.

In 1970, the export value of pure silk fabrics of both mulberry and tasar as well as silk waste varieties was Rs. 141.7 million. The share of mulberry silk fabrics was over Rs. 121 million while those of the tasar fabrics and silk waste were Rs. 13.6 million and Rs. 6.8 million respectively.

Of the total export of mulberry silk fabrics in 1970, scarves were the most popular abroad at an export value of Rs. 75 million. Dress materials fetched over Rs. 25 million, sarees Rs. 10 million and ties over Rs. 3 million.

About 10,000 acres are likely to be taken up soon in Andhra Pradesh for the production of tasar silk. Presently 2,000 acres are being utilized for tasar rearing. High yielding cocoons (Daba variety of Bihar) and such other new races are to be introduced in selected Districts of the State. When the scheme comes to fruition, tasar yield is estimated to go up by worth Rs. 5 million.

Thanks to the experiments successfully carried out by the Central Sericultural Research and Training Institute, Mysore, the Mysore State which is predominantly a multivoltine sericultural State accounting for over 75 per cent of India's raw silk output is now poised to become a bivoltine State. As the country's export trade through the raw material of art silk will be possible only when the quality of the silk produced comes up to the international standards it has been considered necessary to introduce bivoltine race hybrids for commercial production of cocoons in place of the present multivoltine and bivoltine crossbreed layings. Researches carried out have established that the Mysore State can successfully produce the high grade bivoltine race hybrid cocoons that can produce the required standard of international grade of raw silk.

Among the top silk exporters M/s. Banaras Art House, D-29, Connaught Place, New Delhi-1, leads the list with over Rs. 5 million of annual export trade to their credit. Of the other leading exporters with an export business of over Rs. 2 million mention may be made of M/s. Handicrafts and Handlooms Exports Corporation of India Ltd., No. 3, Dr. C. P. Ramaswamy Iyer Road, Madras-18; M/s. Indian Textile Co (P) Ltd., Great Eastern Hostel Arcade, Calcutta; M/s. Raja Silk House (P) Ltd., Basavaraji Market, Bangalore-2; M/s. Venilal's Export House (P) Ltd., Jaihind Estate, Bhuleswar, Bombay-2; M/s. Fancy Dyeing & Printing Works, L-42, Connaught Circus, New Delhi-1; M/s. Banaras Silk Museum, 28/12, Gyanbapi, Varanasi

(U. P.); M/s. Nandakishore & Co, 247, Kalbadevi Road, Bombay-2; and M/s. International General Traders, P. B No. 2094, 2nd Bhoilwada, Bombay-2. More details of these and other leading exporters as well as their product range may be secured from the Central Silk Board, Meghdoot, 25-B, Marine Drive, Bombay-2.

PERFORMANCE OF TEA EXPORTS

Provisional estimates made by the Tea Board reveal that India's tea exports in 1971 were 202.63 million kg. worth Rs. 1603 million. In 1970, the exports were 208.43 million kg. worth Rs. 1488.2 million. The trend indicates a higher unit value realization in 1971.

Consequent to the decision taken by the Food and Agricultural Organisation (FAO) to switchover to fiscal year's quota system, India and Ceylon were given a joint quota of 506 million kg. for the 15 month period ending March 1972. India's quota under this is 253 million kg. For attaining this target, India has to ship only 40.37 million kg. in the three-month period January-March 1972, in addition to what has already been exported during 1971 (January-December). It is likely that the export quota may even be exceeded.

The bumper North-East Indian tea crop in 1971 has greatly helped the tea industry to fulfil its exports commitments. The North-East Indian crop bas been estimated at 328.25 million kg. recording an increase of 9.5 million kg. over that of 1970. The All India tea-crop in likely to reach 429 million kg. compared to 421 million kg. for 1970 and 395 million kg. for 1969.

HIDES AND SKINS EARN MORE FOREIGN EXCHANGE

In the first eight months of 1971-72 (April-November 1971) the export value of leathers recorded improvement at an estimated Rs. 364.8 million as against Rs. 294.0 million in the corresponding period of the previous year. In the full year 1970-71 the export performance was valued at Rs. 472.5 million.

E. I. tanned hides including calf skins were exported to the tune of Rs. 81.55 million in the period under review of 1971-72 as compared with Rs. 66.16 million in the corresponding period of the previous year. Almost all varieties of E.I. tanned hides registered improvement in their export including cow hides and kips, cow calf skins, buffalo hides and buffalo calf skins. There was an improvement in respect of E.I. tanned exports also to Rs. 356 million from Rs. 273 million. Sheep skins earned Rs. 109.4 million as against Rs. 84.35 million and goat skins Rs. 165 million against over Rs. 122 million. There was, however, a shortfall in the offtake of pickled goatskins, tanned reptile skins and goat hair.

In 1970-71, E.I. tanned hides including calf skins were supplied overseas to the tune of Rs. 105.46 million. In the same year the export value of E.I. tanned skins stood at Rs. 444 million while pickled goat skins earned Rs. 87 million, tanned reptile skins Rs. 7.6 million, goat hair Rs. 7.1 million and tanning raw materials Rs. 5 million.

UPSURGE IN OVERSEAS SALES OF DIAMONDS

Export trade in cut and polished diamonds witnessed upsurge during April-November 1971. Export value in the period was about Rs. 237.5 million against Rs. 183.3 million for the corresponding months of 1970. It is expected that diamonds will fetch an export earning of over Rs. 320 million in 1971-72.

In 1970-71, exports of diamonds, cut and uncut (other than industrial diamonds) totalled Rs. 282.56 million. Cut diamonds exports valued at Rs. 279.93 million were mainly supplied to Belgium (Rs. 102.30 million), Hongkong (Rs. 76.5 million), Netherlands (Rs. 10.87 million), Japan (Rs. 15.18 million, U.K. (Rs. 12.84 million) and U.S.A. (Rs. 28.86 million).

Pearls were exported to the tune of Rs. 10.3 million in the year 1970-71. Other precious and semi-precious stones including emeralds fetched Rs. 118.26 million, while synthetic and reconstructed and precious and semi-precious stones secured Rs. 7.7 million.

In the recent months, export orders were particularly brisk for cut and polished diamonds. Among prominent buyers were the U.S.A. and Japan. America showed specific interest in superior double cuts. The Japanese were also demanding the superior double cut variety. HongKong is reported to have shown preference for single cuts. Belgium was also in the market.

TOURIST EARNINGS DURING 1971

India attracted 300,000 tourists in 1971. It is expected that the 400,000 tourist-target will be achieved by 1973 as a result of various measures being taken to strengthen the tourist infrastructure at home and tourist promotional efforts abroad, stated the Minister for Tourism and Civil Aviation. The foreign exchange earnings from tourism were estimated at Rs. 400 million in 1971.

HANDLOOM COTTON BRIGHTENS

Exports of handloom textiles totalled Rs. 230 million in 1971. Overseas demand for the 'Bleeding Madras' cloth has been particularly encouraging. The export value of handloom cotton goods alone is expected to hit the Rs. 200 million mark within a year's time.

There has, however, been a fall in silk goods exports from Rs. 140 million in 1970 to about Rs. 70 million in 1971. The major reason was the glut in the foreign markets for silk and other silk goods. During 1972, the expectation is to export about Rs. 80 million worth of silk goods.

Three awards have been presented recently for the best export performance in handloom cotton goods, silks and readymade garments. An additional eleven special awards were also presented to those who made a significant contribution to the export trade.

OPIUM EXPORTS UP

During 1972 the export quantum of opium is expected to touch the figure of one thousand tonnes at an anticipated value of about $ 24 million. In the preceding year about 900 tonnes of opium were exported which fetched $ 6.2 million. This trend indicates a large improvement in the unit value realisation.

Financial year-wise the quantum of crude opium exported in 1970-71 was 693 tonnes at a value of Rs. 86.3 million. The principal importers were the U.K., the U.S.A., France, German Federal Republic, Italy, Japan and Spain.

Opium is largely used for the manufacture of morphine, codine and other alkaloids. These derivatives are used extensively in the production of pharmaceuticals.

India has been in short supply of such opium alkaloids. A single plant with an annual production capacity of 2,000 kg. produced 6,500 kg of opium alkaloids, in 1970. There are plans to erect another opium alkaloid plant in Madhya Pradesh. This plant would have an annual production capacity of 15,000 kg. to work on a three-shift basis.

The improved capacity is expected to make the country self-sufficient in opium alkaloids which is now being imported on a barter basis. Besides, when the new plant goes into full production by the end of the year, it may leave surplus alkaloids for export. Opium alkaloids fetch higher prices than raw opium.

HIGHER EXPORTS OF TELECOMMUNICATION APPARATUS

A wide variety of telecommunication apparatus including domestic radio receivers, transistor radio sets, telephone and telegraphic equipment, microphones, loudspeakers, amplifiers and wireless reception equipment has been active in export business, during the first five months of 1971-72 (April-August). In this period the export value amounted to Rs. 14.8 million as against Rs. 9 million in the corresponding period of 1970.

In the earlier two years too export trade in telecommunication apparatus has been fairly encouraging. In 1970-71, the export value was Rs. 27 million while in the previous year it was Rs. 22.8 million.

Transistor radio receiver sets alone fetched about Rs. 9.7 million in the period under review of 1971-72. The entire group of radio receivers including component parts earned Rs. 11.2 million. The Sudan and the U.K. were the major markets that imported transistor radio receiver sets in this period.

Australia, Kenya, Iraq, Ceylon and the U.K. were the principal importers of telephone and telecommunication equipment and parts while wireless reception apparatus was mainly supplied to Iran and the Arab Republic of Egypt.

NDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

INCREASE IN POWER GENERATING CAPACITY

In the six-year period ended March 1971, power generating capacity in India increased from 10.18 million kilowatts to 16.40 million kilowatts - a rise of 60 per cent. Energy generation rose correspondingly from about 36,800 million units to about 60,000 million units.

Electricity was supplied to 61,103 more villages, bringing the total number of villages electrified to 106, 939. An additional 1,116,448 agricultural pumps were energised, raising the total number of energised agricultural pumps to 1,629,368.

As a result of all these, the annual per capita consumption of electricity in the country increased from 61 units to about 87 units.

The first nuclear power station was commissioned at Tarapur in Maharashtra. Its installed power generating capacity is 400 Megawatts (MW). Other major power projects commissioned during the period were: Bhakra Right Bank Project Extension 480 MW; Obra Hydel Project (U.P) 100 MW; Obra Thermal Project (U.P) 250 MW; Ranapratapsagar Hydro Project 172 MW; Pathratu Thermal Extension 300 MW; Thermal Power Extension in D.V.C. 280 MW; Talcher Thermal Project 250 MW; Satpura Thermal Power Extension 312.5 MW; Korba Thermal Power Extension 200 MW; Sabarigiri Hydro Project 300 MW; Parambikulam Alivar Project 155 MW; Ennore Thermal Extension 110 MW; Neiveli Thermal Extension 350 MW; Sharvati Hydro Project Extension 540 MW; Nasik Thermal Power Project 280 MW and Indraprastha Power Station Extension Delhi 187.5 MW.

Institutes for training of operation engineers and operators were established at Neiveli and Durgapur.

The first switchgear testing station was set up at Bhopal. Giant plants for the indigenous manufacture of large hydro and thermal generating units were established at Bhopal, Hardwar, Hyderabad and Tiruchi.

Under a decade plan for power development formulated by the Ministry of Irrigation and Power, power generating capacity in the country is to be stepped up to 52 million kilowatts by March 1981. The average annual per capita consumption of electricity would then be 240 units.

The Ministry has also drawn up a decade plan for rural electrification with emphasis on energising agricultural pump sets. Under it, 4,870,000 additional pump sets would be energised and 233,000 villeges electrified.

In essence the installed generating capacity improved from 10.17 million KW in 1965-66 to 16.40 million kw in 1970-71; electricity energy generation improved from 36,825 million units to 61,366 million units; villages electrified from 45,806 to 106,939 nos; Irrigation pumps energised from 512,920 to 1,629,368 nos; per capita consumption from 61 units to 87 units in the comparable years.

INTENSIVE JUTE CULTIVATION AIMED AT

Aimed at producing 840,000 additional bales of raw jute, a two year intensive jute cultivation programme is to commence next season (1972-73) in six districts of four Eastern States of India. The area to be brought under the intensive cultivation accounts for nearly 47 per cent of the total area cropped with jute in the country. A total area of 300,000 hectares is to be brought under the scheme to receive improved package practices and another 30,000 hectares under an extension programme. A separate mesta development programme in Andhra Pradesh is also aimed at for producing 40,000 bales of the fibre.

The demand for jute in Indian mill consumption is currently estimated at 7.5 million bales but production in a normal year has been of the order of 6.5 to 6.7 million bales. The production estimates for 1969-70 and 1970-71 were, however, lower at nearly 5.65 million bales and 4.9 million bales respectively. The gap in supply is being met partly by imports.

An additional quantity of 380,000 bales of jute is likely to be produced during 1972-73 and the full potential of 840,000 bales is expected to be realised by 1973-74. The aggregate value of this production is estimated at Rs. 270 million.

Complete saturation of the intensive cultivation area with certified seeds, adoption of improved agricultural practices, application of nutrients including foliar spraying of urea and plant protection are among the measures to be adopted for stepping up the yield in jute in the selected districts. As part of long-term action to implement the programme, it is proposed to evolve short-duration, high yielding varieties, provide protective irrigation in traditional areas and extend jute area through double-cropping in potential non-traditional areas. The yardstick of additional yield out of the programme has been assumed modestly at two bales per hectare for jute, one bale per hectare for mesta and eight bales per hectare for expansion of area.

While it is well-known that jute is being replaced by synthetic fibres as a packaging medium, it is interesting to note the re-assurance of the chairman of the Jute Importers Association, Dundee who stated that "for the majority of uses jute is the more favoured article".

Recently the Indian Standards Institution worked out a revised grade standards for different varieties of jute. The revision of the jute grade standards became necessary because only two quality characteristics of jute fibre, namely, colour and percentage of root cuttings, were employed earlier as indices of grading. But there are many other characteristics such as strength, length and lustre that could be made use of to differentiate fibre qualities. Assesment of shade, colour proportion of cutting and relative strength need not now be left to the subjective judgement of buyers. All the quality characteristics of jute have been taken into consideration in the revised grading scheme.

Various testing instruments have been designed and constructed by the Indian Jute Industries' Research Association (IJIRA) Calcutta-53, for use in jute mills as practical aids in process control, quality grading, cost studies etc. Among the instruments developed are moisture meters, lustre and brightness meters, sliver irregularity testers, fibre disorientation tester, photoelectric yarn irregularity recorder and automatic slub counter, yarn imperfection testers and photo-electric cover factor testers. The development of these and other instruments are only to further help quality production of jute manufactures in India.

PRODUCTION TRENDS OF COFFEE

Total production of the Arabica and Robusta varieties of coffee was of the order of 110,000 tonnes while the estimated target of coffee output by the end of the Fourth Plan period (1973-74) was only 94,000 tonnes. The plan target has thus been surpassed, thanks to a combination of factors like higher per acre yields and favourable weather conditions. The 1971-72 crop is estimated at only 69,000 tonnes. It is expected that there would be general production increases in the years to follow.

During 1970-71 the share of the Arabica varieity in the total coffee output was placed at over 58,140 tonnes while that of the Robusta variety at 51,635 tonnes. The 1970-71 crop was in fact a record crop for several years, the total coffee output having been only 63,600 tonnes in 1969-70, 73,430 tonnes in 1968-69 57,330 tonnes in 1967-68 and 78,470 tonnes in 1966-67.

The total area under coffee production as in 1969-70 was of the order of 130,780 hectares of which Mysore's share was 77,766 hectares, the shares of Tamil Nadu and Kerala were 23,737 hectares and 28,396 hectares respectively. The yield per hectare was 483 kg. for the Arabica variety and 491 kg. for the Robusta variety per hectare as in 1969-70.

Coffee exports touched a new record in 1970-71 at a quantity of over 38,160 tonnes (21,803 tonnes to quota countries and 16,364 tonnes to non-quota countries). In the earlier year the quantity exported was 32,383 tonnes. Looked at the quantity exported at 19,690 tonnes in 1960-61, the progress in coffee exports in recent years has indeed been encouraging.

Europe has been the main market for Indian coffee and its share has been uniformly higher. With the emergence of the East European countries as large buyers of Indian coffee, the share of the traditional West European markets has dwindled in recent years.

A decade ago the West European markets accounted for nearly two-thirds of the total exports of coffee from India but their share progressively declined and fell to about 7.5 per cent in 1970-71. On the other hand exports to East European oountries were as much as 76.6 per cent of the total exports in 1970-71.

Interestingly, there has been an increasing trend in the export of processed coffee from India in recent years. Processed coffee exports are in the form of roasted and ground coffee as well as instant coffee. While in the past, exports of roasted and ground coffee were higher, instant coffee exports have been showing an increasing trend in recent years. In 1970-71 instant coffee exports (coffee extracts and essences) were valued at Rs. 11 million. Besides, freeze dry coffee is becoming popular lately.

SPURT IN COTTON OUTPUT ENVISAGED

Following the implementation of the scheme for Intensive Cotton District Programme, it is envisaged that cotton output will improve substantially during 1972. The scheme proposes to cover 400,000 hectares during 1971-72, 480,000 hectares in 1972-73 and 560,000 hectares in 1973-74. The programme was initiated in six selected districts of the country. The main strategy for securing additional production was to cover the entire area by pure seed specially of the new varieties, maintaning optimum plant population weed control, adoption of a full plant protection schedule by prophylactics and fertilisation at the recommended level.

The intensive cotton district programme envisages a target of 8 million bales by the end of the Fourth Five Year Plan (1973-74), from the present production of 5.5 million bales. The emphasis is on raising the yield per unit area and also on the extension of cultivation in non-traditional areas. Cotton has therefore been allowed to be raised as a second crop after paddy in the coastal areas of Andhra Pradesh, Tamil Nadu and West Bengal. In Andhra Pradesh extra long staple cotton, MCU-5-is being grown since 1970-71. In West Bengal several demonstration plants reveal the possibility of taking up cotton cultivation in the rice fallows of Sunderbans. In Tamil Nadu about 10,000 hectares are under rice fallows growing P216F and PRS 72 cotton in the Tanjore district.

Presently hybrid-4 is the only hybrid cotton grown commercially and it gives an additional yield of about 2.5 bales per hectare over the other varieties. With the implementation of the intensive district programme as also the expansion of the existing programme including the extension of area under the high yielding type it will be possible to create adequate potential of all cottons stapling up to 1-3/16 inch to meet the demand in full.

STEEL CAPACITY TO EXPAND

Steel plants in India both in public and private sectors will be allowed to reach their optimum size so as to enjoy the benefits of scale of production. New steel plants would be built only after the existing ones exhaust all possibilities of economic expansion, stated the Minister for Steel and Mines. On a rough estimate India will have to create additional capacity of two million tonnes of steel ingots every year between 1980 and 1985 to meet the demand for this basic industrial raw material. Government are considering to set up a research and development board for the iron and steel industry.

Detailing the proposed holding company for the iron and steel industry in the country the Minister stated that the proposed company would be a hundred per cent Government company and would hold all Government shares in the public sector organisations like Hindustan Steel and Bokaro Steel on the one hand and on the other act on behalf of the public financial institutions in relation to shares held by these institutions in the private sector steel companies. The establishment of the holding company was not intended to restrict the autonomy of the operating company. It would merely approve of the plan of the operating subsidiary.

The five integrated steel plants in India have a rated capacity of 8.9 million ingot tonnes or about 6.5 million tonnes of saleable steel. The production was only around 4.5 million tonnes of finished steel in 1970-71 representing about 67 per cent of the rated capacity. The country imported steel worth Rs. 2000 million during 1970-71. The production target of 7.2 million ingot tonnes or 5.4 million tonnes of finished steel has been set for 1971-72. It is hoped that the production expansion will help bring down the import bill to Rs. 500 million a year.

The tempo of work at Bokaro steel plant has been accelerated. The completion of the project at 4 million tonnes is expected by 1975-76. Simultaneously steps are being taken to increase the capacity by 2.5 tonnes by 1974.

The expansion of Bhilai from 2.5 to 4 million tonnes is expected to be completed by 1976-77. In addition production from electric furnace is sought to be pushed up mainly based on scrap with the sole aim of utilizing the available scrap in the country for steel making and if necessary supplement through imports. In the case of alloy steels also expansion in capacity has been taken up including that of the alloy steel plants at Durgapur. Happily, the production of alloy steel in the country is picking up on a fairly satisfactory basis.

In respect of copper and zinc, the Indian economy has been lagging for some time but here again the present picture is very encouraging than a few years ago. A new flash smelter for copper has been put in at Ghatsila by the Indian Copper Corporation. Work at Khetri and Rakha has been making good progress. In Zinc too, Hindustan Zinc is coming up well. The new deposists of copper located in Madhya Pradesh and lead and copper in Andhra Pradesh as also of nickel and lead in Orissa are receiving every attention.

NICKEL EXTRACTION PLANT TO BE SET UP

A nickel extraction plant will soon be set up in Orissa. The project is being set up to speed up exploitation of the country's biggest nickel ore reserves available in Sukinda areas of Orissa. For this purpose a public sector corporation will be set up with Union Government having fiftyone per cent shares and the State Government having fortynine per cent shares in it.

The nickel extraction plant will have a capacity of producing 4,800 tonnes of nickel powder 200 tonnes of cobalt powder and 17,000 tonnes of ammonium sulphate as byproduct each year.

According to tentative estimates the capital cost of the project has been worked out at Rs. 324 million of which Rs. 12.4 million will be in foreign exhange. The construction of the project will take nearly four years. The plant will achieve its rated capacity in the third year from commissioning.

The Hindustan Copper Limited, a public sector undertaking has been asked to take up necessary steps to exploit the desposits.

According to expert assessment, 69000 tonnes of nickel ore will be mined each year from these mines. Investigations conducted by the geological survey of India have revealed the existence of three shallow saucepan shaped nickel ore bodies around Kansa in Sukinda ultramafic field with rich mineral contents. Of these, the Kansa East deposits will be the main feeder for the nickel extraction project.

PROGRESS AT RAJASTHAN AND KALPAKKAM NUCLEAR PROJECTS

The first unit of Rajasthan Atomic Power Project, India's second atomic power station is almost complete and will be shortly ready for loading of fuel. This 200 MW nuclear unit is the largest single unit in India.

Indian consultants, appointed for work relating to the nuclear Fast Breeder Test Reactor at Kalpakkam, have made good progress in the design of the civil works pertaining to the reactor. It is expected that the subgrade works will commence in March/April 1972.

The Test Reactor of 15-MW capacity, basically similar to the Rhapsodie Reactor in France but modified for power generation, is being taken up with the assistance of the Franch Atomic Energy Commission in regard to design and construction. Agreements are being finalised with four French industrial firms for supply of know-how for the fabrication in India of major components for the Fast Breeder Test Reactor (FBTR). These include sodium pumps, intermediate heat exchanger, reactor vessel and internals, control rod drive and fuel handling mechanism.

It is expected that these agreements will become operative before the end of the year and Indian manufactures identified shortly after. Steps have already been initiated to procure all imported material required for the fabrication of the equipment and these are expected to be received during the year-end and early next year.

An on-line computer for the reactor's operation will be manufactured by the Electronics Corporation of India Limited.

In addition to FBTR, sanction of the Goverment has been received for setting up of a Reprocessing Development Laboratory at Kalpakkam at a cost of Rs. 4.3 million. The design for this laboratory has been finalised and steps taken for procuring special material required for its construction, expected to be completed in three and a half years.

The Laboratory is among the facilities which are to be built up at the Reactor Research Centre in Kalpakkam, besides the Fast Breeder Test Reactor. Other major facilities being taken up at the Reactor Research Centre are the laboratories for studies in reactor engineering, safety research, fuel development and instrumentation development and a pulsed fast reactor for materials research in addition to physics research; a fuel reprocessing plant; a fuel fabrication facility and waste treatment facilities.

Progress is being made simultaneously on a number of these projects. The building for the Pulsed Fast Reactor has been designed. The design of the reactor itself is progressing and the details will be finalised on the basis of experience in the operation of the fast critical facility set up at the BARC, and likely to go critical before the end of the year. The Pulsed Fast Reactor will be a unique facility for physics research particularly in the fields of solid state studies and radiation damage.

Basic design for the Radiochemistry and Radiometallurgy has been completed and construction work is expected to commence in the second half of 1972, and the project completed in 1975. Buildings of the Engineering Laboratories have been completed and the supporting structure for an experimental loop is being installed.

PROGRESS AT ASIA '72

About 40 countries have confirmed their participation at the Third Asian Fair to be held in New Delhi during November 1972 to coincide with the Silver Jubilee Celebrations of India's Independence. Among the countries who have recently confirmed their participation are Trinidad and Venezuela.

The Rs. 5.7 million Theme Pavilion of the Fair is well past the blueprint stage. Put up by the National Institute of Design, Ahmedabad in cooperation with the Art Centrum of Czechoslovakia the pavilion will employ the latest audio-visual and multiple projection techniques to depict India's heritage and development. It is estimated that during the fortyfive-day Fair as many as 1.5 million people will witness the mosaic of Indian history and cultural display in the Theme Pavilion in light and sound.

The Hall of Industries will display representative product range manufactured and marketed by the various participating countries. Behind the Hall a Rural Complex will be developed over 1.5 acres of land, suitably landscaped to represent rural topography in different parts of India.

Following the tradition of highlighting the national commodity of the host country as the theme of the Fair, Asia'72 will have a Textile Pavilion which will depict the role of textiles in India's economy, culture, history and the struggle for independence. An international conference on textile technology will be the highlight of programme.

Charles Eames' peripapetic exhibition on "Nehru and New India" will be a permanent home in the Asia '72 Complex. Put up in New York by the British designer and subsequently organised as a UNESCO-sponsored exhibition in 13 major cities of the world the "Nehru" Exhibition will be seen for the first time in India.

National and International interest in Asia '72 has increased a great deal lately. The space bookings are nearly over. The work of levelling the open plots has been completed. The plots are ready for starting construction work for individual pavilions. Construction work for the Hall of Nations and the Hall of Industries has already begun. The United Nations Industrial Development Organisation (UNIDO) has offered to provide Industrial Promotion Service during the Trade Fair. They will extend assistance for person to person get-togethers of buyers and sellers. They will also help negotiate joint ventures and offer advisory services, managerial assistance and know-how. As part of its programme the UNIDO will organise two Industry Days each for about 100 businessmen.

In 1971 UNIDO had provided such services at the Arab Fair for Textile Industries in Cairo, the Second Ghana International Trade Fair in Accra, the Budapest International Fair in Hungary and the Fifth Malta International Fair in Mediterranean.

The Industrial Promotion Service of UNIDO is financed with voluntary contributions from member States. India's 1971 pledge to UNIDO is of the order of $ 150,000. As the host country the Government of India will be providing UNIDO, local facilities free of cost in addition to the free allotment of covered furnished space. This service will help India initiate a dialogue with participating countries both developed and developing, in the role of a recipient as well as a donor. A large number of products, related to product adaptation, within this country were initiated by the UNIDO. The proposed Industrial Promotion Service at 'Asia '72 is expected to lead to bilateral and multilateral deals in selected industrial sectors.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL PROGRESS

AWARD FOR INDIGENOUS RESEARCH

The Sir P. C. Ray Award for 1971 has been conferred on M/s. Dharamsi Morarji Chemical Company Limited, Bombay. Progress in indigenous research and development for commercial manufacture of previously imported chemicals, large savings to the country in foreign exchange and development of new products and processes are some of the features of the firm.

An important characteristic of the chemical plant of the firm is the built - in system of heating recovery employed by it which makes it virtually independent of outside electric power. This makes it an ideal manufacturer of sulphuric acid particularly keeping in view the power shortage, common to all developing countries. The plant also manufactures chlorosulphonic acid which meets the demand for the acid from manufactures of dye stuffs, sweetening agent and the drug industry particularly for manufacture of sulpha drug The saving to the country in foreign exchange as result of indigenous manufacture of drug intermediate made with this acid is stated to be about Rs. 7.5 million Again the indigenous availability of this acid fo preparation of ortho toluene sulphonamide essentia in the manufacture of sweetening agents as saccharin has resulted in the saving of foreign exchange to the tune of about Rs. 3.6 million during the years 1968 to 1970.

Among the few companies in the world that have been successful in developing the process know-how for the manufacture of sulfamic acid, the Bombay firm is perhaps the first and the only company in India to have developed the chemical through its research activity. Sulfamic acid finds use in descaling operations for a large variety of industrial equipment and for cleaning operations in dairies. It is also used by paper and textile industries and electroplating.

INDIGENOUS DEVELOPMENT OF TITANOUS SULPHATE

The Central Electrochemical Research Institute, Karaikudi, has developed a process for the electrolytic reduction of titanic sulphate solution to titanous sulphate. The titanous sulphate solution is a powerful reducing agent and can be used for the removal of certain dyes from textile material.

The process consists in the electrolytic reduction of titanic sulphate solution of 100 g/l titanium dioxide in a divided cell consisting of lead anode and rotating amalgamated lead cathode.

D. C. RECORDING POLOROGRAPH DEVELOPED

The National Chemical Laboratory, Poona has developed a know-how for fabrication of D. C. Recording Polorograph. It is a sophisticated instrument used in polorographic analysis. Polorography is an electrochemical method of analysis based on electrolysis with a dropping mercury electrode. It has proved o be a powerful tool for investigating inorganic eaction mechanisms, determination of stability cons-ants and reaction kinetics. Recently, polorographic echniques have received attention from organic hemists and the polarograph has been used for understanding reaction mechanisms, steric effect, etc. It has also found use in chromotography.

The laboratory has built prototype instruments, tested these and found these to be satisfactory. The performance of the NCL product is comparable to the imported models. All the components needed are available indigenously.

TELECOMMUNICATIONS INDUSTRY

In the telecommunications industry there is a large scale manufacture of telephone equipment and teleprinters. Besides, high frequency transmitters, receviers, telegraph equipment, amplifiers etc. are also turned out in the country.

Telephones

Starting with the assembly of telephone instruments, the Indian Telephone Industries (ITI) has not only increased the production capacity over the years but also diversified the production to a great extent. Today, the ITI produces the entire range of telecommunication equipment. ITI's production range includes automatic telephone exchanges of both strowger and crossbar types; electronic multi-channel long distance transmission systems; a variety of telephone instruments; sophisticated equipment for Defence services and Railways; electronic measuring instruments and other items like road traffic signalling equipment. condensers etc. Today, the unit turns out annually 250,000 telephones and 180,000 lines of exchange equipment to balance.

In the manufacture o strowger telephone equipment the factory by its own development of indigenous know-how has replaced a number of imported components and raw materials by indigenous items. While the design of the main components of the strowger equipment remains basically the same, considerable changes in the circuitry for improved working have been introduced.

With the planning of national automatic trunk dialling net work, it became necessary to switch over to a more modern system of switching equipment known as crossbar system. The ITI accordingly set up a new unit in the Bangalore factory for the manufacture of crossbar equipment.

In the field of telephone instruments manufacture, new models have been designed as well as improvements made in the efficiency of the instruments. Besides the Priyadarshini variety of telephone, ITI has designed and developed two new models, types 671 and 681, the manufacture of which has been undertaken. These two latest types incorporate the new split armature receiver designed by the ITI, resulting in improved performance in receiving and transmission.

A notable feature of indigenous design is in respect of manufacture of the complete range of transmission equipment in association with the Telecommunication Research Centre of the Posts and Telegraphs Department. Starting with the three channel carrier system for open wire lines, ITI is also associated in design and manufacture of stackable system and 8 channel and 12 channel systems. Subsequently, the manufacture of equipment for co-axial system and microwave systems were undertaken. The ITI currently produces 6 MHz 1380 channel co-axial equipment and small tube 600 channel 2.6 MHz co-axial equipment. A broad band 6 GHz microwave system with a capacity of 1800 channel is in pilot production stage. For the satellite telecommunication link recently set up at Arvi near Poona, ITI supplied the multiplexing equipment. In respect of microwave equipment, it is currently producing 300 channels 7 GHz equipment. All the equipment has been produced to indigenous designs.

ITI manufactures a wide range of electronic test instruments required for use in the installation and maintenance of communication equipment. These have been developed with designs obtained from the Telecommunication Research Centre.

With the expansion of current production line ITI has formulated the future pattern for the next decade which is based on two improtant aspects-viz. use of integrated circuits in the components field, and use of digital circuits and solid state microwave devices in the techniques field. Thus, while the last decade had generally seen about 8 to 10 types of major electronic equipment, the next decade will project at least 20 to 30 types with about 6 times the previous production targets.

The number of integrated circuits which are envisaged to be utilised by the ITI in the next five years is likely to be of the order of one million. The ITI is already having its broad development programme for using linear integrated circuits for its multiplex equipment used in co-axial and microwave system. For the portable defence communications, ITI is changing over to all digital series such as pulse code modulation, multiplex, field electronic exchange and automatic electronic switch. For trouble-free telegraph operation, a unique equipment called Automatic Error Detecting and Correcting equipment has been developed.

Utilisation of integrated circuits in the telephone instrument field holds out considerable possibilities both in economy and facilities towards amplification, auto-gain control, multi-frequency signalling and touch-tone dialling etc. The Instrument Division of the firm is already seized of these aspects and development is under way.

The Research and Development Division of ITI and the Telecommunication Research Centre of the Posts and Telegraphs Department are at present jointly working on the development of an electronic exchange. It is expected that an electronic exchange will be ready for field trials in the next 2 or 3 years.

For increasing the junction capacities between exchanges in large metropolitan areas, the latest concept of using multi-access time division multiplex, pulse code modulation, has already been developed. It is estimated that with this equipment in the field, it is possible to increase the inter-exchange junctions capacity by 12 to 24 times on the same existing underground cable. For automatic detection and correction specially on the H.F. radio links, an all-digital equipment using integrated circuits has already been developed. Other digital systems such as data moderns, central computer control, etc. are also in the expansion programme.

Indian Telephone Industries entered the export field in 1963 on a modest scale and has been making notable progress. In the East African countries ITI has undertaken complete turnkey jobs of installation of automatic exchanges. These orders were secured through global tenders against keen competition from other well established and leading manufacturers of telecommunication equipment in the international market. ITI has also supplied long distance transmission equipment to Nigeria. Exports also include components and piece parts for telecommunication manufacturers in developed countries like the United Kingdom.

The total exports of the Indian Telephone Industry upto 1970-71 amounted to Rs. 37 million, covering Asian, African, the Middle East and European countries as well Australia, New Zealand and South America. In 1970-71 alone the exports reached the figure of Rs. 5.25 million. In the first three quaters of 1971-72 (April - December 1971) the undertaking exported telecommunication equipment worth Rs. 1.9 million.

Teleprinters

In the allied sphere of telecommunications, manufacture of teleprinters has been established in the country a few years ago. The manufacturing unit, the Hindustan Teleprinters Ltd. Madras was initially set up to attain a capacity of the equivalent of 1300 tape teleprinters with provision for expansion to an ultimate capacity of 7700 units per annum. Now the capacity has been further raised to 8500 units per annum.

Starting with the assembly of a few teleprinters from imported components, the factory turned out 5310 units of teleprinters in 1969-70.

The range of products manufactured by the factory now includes Tape Teleprinters, Page Teleprinters, Printing Reperforators, Independent Automatic Tape Transmitters, Tape Transmitter Attachments, Reperforating Attachments, Signalling Power Supply units of various types, Switch Board, etc. Apart from manufacturing standard versions of teleprinters, tailor made versions to suit the specific requirement of customers are also manufactured and supplied.

The factory started manufacture of teleprinters with English key board and in 1968 it added to its range teleprinters with Devanagari script key board.

In 1969 a proto-type with Arabic key board was developed. The Company has achieved self-sufficiency in the production of manufactured components required for various kinds of teleprinters. It has also made considerable progress in establishing indigenous substitutes for bought-out telprinter components. It has also developed indigenous equivalent for almost all imported non- ferrous raw materials. As regards ferrous materials, substitutes have been found for 18 per cent of the items, which account for 46 per cent of the total requisite quantities in kgs. of such materials. The remaining items or their equivalent are not available in India and the requirements of the Company for these materials are only in small quantities. The foreign exchange content of a unit teleprinter works out to about Rs. 520 which is barely 10 per cent of its price.

The teleprinter is a complicated and delicate machine and is made up of over 2000 nos. of specific precision parts and 800 nos. of standard parts like screws, nuts, washers, circlips, etc. To ensure good and long service, the correct type of raw materials should be used and the parts should be made to specifications. The quality control department attached to the factory ensures this.

Quality control from raw material to finished goods, involves inspection at over 15,000 points in the factory at various stages of manufacture and assembly of machines. There is a separate Inward Goods Inspection Department which ensures quality of components purchased from other ancillary units.

The Research Department of the unit has helped the development of a number of new products and augment the functional utility of a number of others which are already in the market.

Some of the new products developed recently are: Arabic Teleprinters, Line units for connecting the teleprinters to manual or automatic teleprinter switch boards with facility to work either on Single or Double Current basis, Intelex switch boards for the international Telex equipment at Bombay, Interface unit for conversion of Digital codes parallel output signals to a sequential teleprinter signals, Teleprinter commutators for inter-connection of Voice Frequency Telegraph Channels to Teleprinters in medium and large teleprinter installation, High speed Teleprinters, Tape Readers and Tape Punches.

The company's continued efforts for import substitution resulted in establishing indigenous sources of supply for 11 items of bought out components during the year 1969-70. For the standard page machine only 9 components of minor value require to be still imported. An important item indigenised during the year was Teleprinter Motor on which alone there is a foreign exchange saving of Rs. 768,000 per annum and a cost reduction of Rs. 532,000 per annum. A cost reduction of Rs. 20,000 per annum and foreign exchange saving of Rs. 14,000 per annum has been achieved in the usage of Mumetal, a costly imported raw material, by suitable alteration in the method of feeding of the material into the blanking press tool without involving any extra tooling. Metallic Tape Roll Holders have been taken up for manufacture in the factory replacing acrylic tape roll holders which were hitherto imported. Cost reduction and foreign exchange saving on account of this work out to about Rs. 25,000 and Rs. 19,000 per annum respectively. The import substitution efforts of the company have on the whole resulted in an additional annual saving of foreign exchange of Rs. 818,000.

A recent entrant in the export field, the Hindustan Teleprinters Ltd. secured orders worth about Rs. 4.8 million from countries like Kuwait, Iran, Bhutan, Ceylon, Yemen and Nepal. The Iranian and Kuwaiti orders were secured against stiff international competition. In 1969-70 alone the unit bagged orders worth Rs. 2.8 million. □

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INDIAN ASSISTANCE TO IRAQI RAILWAYS

The final location survey of the 404 kilometre Baghdad-Hsaibah line is to be taken up by Indian Railways.

An Indian team is leaving for Iraq shortly in response to the assistance sought by an Iraqi Railway delegation which visited India recently. The visiting team has asked India to take up complete construction of the project after the final survey.

An Indian team had earlier carried out feasibility survey of the project and presented its report to the Iraqi Government. This was followed up by further negotiations between Indian officials and the Iraqi team which was recently in this country.

The visiting Iraqi team has also asked for economic study and survey for another railway line for developing phosphate deposits in that country. It has also expressed desire to avail of training facilities in India for Iraqi railway personnel.

Earlier, the Philippine National Railways sought Indian assistance to set up and organize reconditioning centres in Galoocan workshop for reclamation of components, to draw up an integrated plan for rationalising the maintenance facilities in their Railway workshop and train their technicians for the reconditioning centes and prepare them to handle the rebuilds economically. For this purpose, the Indian Government made available the services of three railway experts to the Philippine National Railways.

FRESH EXPORT ORDERS FOR MARINE PRODUCTS

Several export orders are pouring in for the marine products of India lately. During the first nine months of the current year, 1971-72 (April–December 1971), the export value showed a rise of Rs. 41 million improvement over the export performance at Rs. 309 million in the corresponding period of the previous year.

Among the various firms that have received the fresh export orders, M/s. Eastern Sea Food Exports Private Limited, Madras-19 have exported marine products worth Rs. 8.4 million during 1971. In the same year M/s. Chemmeens, Kochangady, Cochin-5, exported about Rs. 6.49 million in that year. Another firm in the group M/s. Mulberry Aquatic Products Ltd., Kankandy, Mangalore-2, exported worth Rs. 0.6 million in the same year.

The pending orders with the above firms are for the supply of canned and frozen sea foods to U.S.A., U.K. and Japan at a total value of Rs. 7 million.

The above group of the firms have introduced improved quality of thicker and better printed waxed cartons for export supplies.

EXPORT ORDERS FOR SPECTACLE FRAMES

India's export trade in spectacle frames is of an annual value of over Rs. 3 million (1970-71).

U.S.S.R. is the major market for plastic frames, followed by U.K. and Sudan. Other varieties supplied overseas include spectacle frames made of material other than plastic and parts of spectacle frames.

M/s. Elite Optical Industries, 31 Mount Road, Guindy, Madras-32, for the first time are entering the West Asian and East African markets. They have already established markets in the U.K., Ireland and West Germany. The firm is expected to meet an additional export demand of Rs. 1 million, and have plans for further modifying product range, design and quality to suit overseas demand. They manufacture celluloid and celluloid/rolled gold combination spactacle frames, spectacle frame hinges and screws.

HAND-MADE WOOLLEN CARPETS

While the entire range of floor coverings and tapestries that India exported during 1970-71 amounted to Rs. 157.5 million, the share of handloom woollen carpets in that year stood at Rs. 89.5 million. The handloom carpets were supplied to nearly 50 countries abroad. U.S.A. alone absorbed worth Rs. 29 million. The intake of German Federal Republic was Rs. 17.8 million while the U.K. imported at a value of Rs. 16.4 million. Other major purchasers included Netherlands, Switzerland, Canada, Australia, Belgium, Denmark, New Zealand and Japan. In the year 1971-72 also, overseas demand for carpets has been fairly encouraging. During April-August 1971 the export value of handloom woollen carpets was Rs. 41 million. Here again German Federal Republic and the U.S.A. were the leading importers.

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M/s. Ram Sunder Ram Nath, Post Box No. 61, Bhadohi (District Varanasi), U.P., export over Rs. 2.5 million worth of handmade woollen carpets annually. Among the markets that they have already made supplies to are U.S.A., Canada, West Germany, U.K., Australia, Hongkong, Belgium, Sweden and Japan. They have on hand firm orders of about Rs. 1.2 million for about 2000 sq. metres for which the supplies are to be completed before June 1972.

PRESERVED FRUITS IN EXPORT MARKET

Preserved fruits and fruits preparations have been active in export business. During April-August 1971 the value of these exports was more than double at Rs. 11.24 million, over the corresponding period of 1970. The total export value of fruits and vegetables in this period of 1971 was as much as Rs. 337.8 million. In the full year 1970-71 the foreign exchange earnings of fruits and vegetables stood at Rs. 650 million. In that year the value of preserved fruit and fruit preparations was Rs. 17.26 million and vegetables (fresh, frozen or simply preserved) were exported to the tune of Rs. 70.36 million.

M/s. Kissan Products Limited, Old Madras Road, Bangalore-16, have been in export business for the last ten years. They have on hand export orders for immediate delivery worth over Rs. 2 million for the supply of mango slices in syrup, mango pulp and juice and earned vegetables to U.S.A., Canada, U.K., West Germany, Norway, Sweden, Denmark, Arabian Gulf, Singapore, Japan and the Soviet Union.

UGANDA SUGAR PROJECT UNDER WAY

The execution of the Uganda Sugar Project which has been entrusted to an Indian firm on a turnkey basis is well underway. The Indian party M/s. Walchandnagar Industries Limited, Poona have already despatched the equipment against the order for a value of around Rs. 6 million. The factory site of the project has been opened for civil work and machinery erection.

The above firm received fresh export orders worth Rs. 1.6 million so far during the current year and it is hoped that the export orders booked by the firm shall increase by another Rs. 10 million in 1971-72.

EXPORT PERFORMANCE AND POLICY

IMPACT OF ENLARGED EEC ON INDIA'S EXPORTS

"The British entry into the European Economic Community without providing adequate safeguards for essential Indian interests is bound to hurt some of our interests now going to that country. Hence forward, Indian exports to the U. K. will not only lose preferential treatment but in many cases they will have to face new tariff barriers. This is a development which is naturally causing us a good deal of anxiety" stated Mr. H. Lal, Secretary to the Ministry of Foreign Trade, while addressing an international training programme on Trade Policy and Export Promotion organised by the Indian Institute of Foreign Trade.

Notwithstanding the fact that during the last twentyfive years, Commonwealth Preferences became more and more insignificant in determining the volume and demand of India's exports to the U. K., the Preferences did play an important part in enabling India to get a major foothold in that market for cotton textiles. It was in this context that the adverse effect of U. K.'s joining the EEC on Indian exports would become evident.

The gains made by the developing countries in terms of the Generalised Scheme of Preferences (GSP) might be more than neutralised by the economic groupings of the industrialised countries. While the acceptance of GSP by the developed countries might be regarded as a triumph of efforts of the developing countries, another parallel development was taking lace in that the ECM erected common external ariffs against all outsiders. What is more, the EEC as come to be enlarged with four more industrialised ountries in its membership including the U. K. thus ontrolling 40 per cent of the overall international rade. This new development of a commom market of ighly industrialised countries "virtually robs the developing world of the favourable treatment under the GSP that was expected to receive against competition from industrial countries".

Ever since the formation of the EEC, the Foreign Trade Secretary stated, India sought to promote closer economic relations with the Community. Some of India's major exports to the Community such as cotton textiles, jute goods and coir manufactures have been subjected to severe quantitative restrictions often imposed in violation of GATT obligations. These problems have been brought to the notice of the EEC many a time before, but no constructive solution has been adopted so far. "We are more keen to negotiate on a comprehensive trade agreement with the enlarged Community so as to safeguard our vital export interests. However, as of now, the EEC has not shown adequate awareness of our trade needs".

Referring to India's trade links with the East European countries, Mr. Lal pointed out that the "exports to socialist countries have been the fastest growing component of India's export trade". The socialist countries have shown adequate awareness of our changing requirements and this augurs extremely well for the further growth of trade and economic cooperation between India and these countries. He further stated that India had always supported the cooperative action by developing countries both on a regional as well as inter-regional basis. "It is our earnest desire to further enlarge the scope for mutually profitable cooperation with developing countries".

Turning to the international monetary scene, India's Foreign Trade Secretary welcomed the world's return to stable exchange rates but felt that these were many unresolved issues. It is India's firm view that the new monetary arrangements responsive to the needs of entire world community must be developed and agreed early. He stressed that the proposal to establish link between creation of international liquidity and development financing must be incorporated as an essential element of new international monetary system.

INDO-NIGERIAN ECONOMIC COOPERATION

About forty specific requests have been made by various state governments and industrialists in Nigeria for setting up industries with Indian collaboration following the visit of an Indian Economic Delegation in September 1971 to that country.

Sugar, cement including asbestos cement, textiles including nylon and polyester, dyestuffs, starch, fisheries, paper and pulp and bicycles are some of industries which offer good scope and for which definite interest had been shown by Nigeria.

It is reported that negotiations have already been started with Indian industrialists on the Nigerian requests.

Another area of Indian assistance to Nigeria is in the exploration and development of oil and natural gas in that country.

A team of scientists from Nigeria is expected to visit India for training at the Institute of Petroleum, of the Oil and Natural Gas Commission, in fields of geology, geophysical work, designing, drilling and other specialised jobs.

A team of Indian experts will visit Nigeria shortly to finalise the details of the programme.

TRADE PROTOCOL WITH RUMANIA

Envisaging a trade turnover to reach Rs. 650 million a Trade Protocol has been signed between Rumania and India for the year 1972. The Protocol was signed by Mr. H. Lal, Secretary, Ministry of Foreign Trade from Indian side and by Mr. N. Nicolae, First Deputy Minister of Foreign Trade, Rumania.

India's exports to Rumania will comprise engineering goods such as machine tools, wire ropes, steel pipes and fittings, chemicals, drugs and pharmaceuticals, paints and pigments, leather etc. besides traditional items such as iron ore, coffee, tanned and semi-tanned hides and skins, jute manufactures, pepper and de-oiled cakes etc.

Imports from Rumania will include fertilizers, rolled steel products, synthetic fibres, caprolactum, dye intermediates, various chemicals, petroleum products, oil prospecting and drlling equipment, calcium carbide and carbon black.

Indo-Rumanian trade was about Rs. 302.81 million during 1970-71. Indian exports were Rs. 137.03 million and Rumanian exports to India were Rs. 165.78 million in that year.

FREIGHT INCREASES BY INTERNATIONAL CONFERENCES

Pursuant to the efforts of the Indian Government the levels of certain freight increase have been brought down by the international conferences/agreements/lines. Special treatment for India has been secured for certain sensitive items and effective dates of increases would be postponed in some cases.

During 1971, there was an unusual spate of general increases in the liner freight rates by the conferences/agreements/lines serving India's foreign trade, on the ground of inflationary pressure on shipping costs particularly at the ports of developed countries. There were as many as 32 general increases in freight rates, not to mention of surcharges on one count or the other. Government of India took a serious view of the unilateral and arbitrary behaviour of the shipping conferences which were hampering the export trade of the country. The Government held negotiations with the major conferences. A delegation led by the Foreign Trade Secretary visited U. S. A. in early 1971 and held talks with the conferences serving Indo-U. S. trade. Similarly the Indian Government intervened in the case of freight increases on Indo-U. K. continent route.

PICK UP IN EXPORT TRADE OF SPICES

The current year is witnessing a spurt in the overseas supplies of Indian spices. In the first six months of 1971-72, the export value estimated at Rs. 162 million is 19 per cent more over Rs. 136 million in the corresponding period of 1970-71.

Spices trade from India has in fact been registering continuous growth year after year. It was Rs. 344.9 million in 1969-70 and Rs. 388 million in 1970-71.

The uptrend in the export trade has mainly been because of the large offtake in black pepper. Pepper exports in the first half of 1971-72 stood at Rs. 61 million against Rs. 42 million of the same period of 1970-71 thus registering a 46.5 per cent improvement.

The break-up of spices exports as are available for the period April-August 1971 reveals that chillies earned Rs. 15 million in this period while cardamom fetched Rs. 23.6 million. Turmeric exports were of the order of about Rs. 15 million, ginger and cumin nearly Rs. 11 million each and curry powder about Rs. 3 million.

COTTON TEXTILE MACHINERY AND EXPORT EFFORT

Total export of textile machinery during 1970-71 was the order of Rs. 53.04 million. Among the varieties of machinery exported are cotton spinning blow room machinery, cotton carding machines, cotton yarn reeling machines, cotton spinning, doubling, drawing, ring and roving machines, cotton weaving automatic powerlooms, cotton hosiery machinery, knitting machines, machines for manufacture of tulle and lace, cord clothing for textile machinery, healds and reeds, healdwire, hosiery meedles, bleaching, dyeing, finishing, sizing, washing and cleaning machinery and so on.

The installed capacity of about Rs. 470 million per annum exists for the manufacture of textile machinery in India. The total production of the country during 1970 was about Rs. 260 million. In addition, the value of spares and accessories produced was about Rs. 250 million.

Recently an award was given by the Textile Machinery Manufacturers Association, Bombay for outstanding services rendered to entrepreneurs in developing of industries manufacturing textile machinery components, accessories, dyes and textile auxiliary chemicals. The award was given to M/s. Laxmi Machine Works, Coimbatore for 1970-71. The award for the best exporter in the line for the year was given to M/s. Texind Corporation Private Limited, Bombay. M/s. Star Textile Engineering Works Ltd., Apollo Bunder Road, Bombay received the second best export award.

CARDAMOM EXPORTS ON RISE

Exports of cardamom from India during 1970-71 increased considerably both in quantity and value. The export value in the year was in fact an all time record at Rs. 113.4 million (1972 tonnes) as against Rs. 89.3 million (1149 tonnes) during 1969-70. The exports of cardamom during the period Jan-Oct. 71 amounted to 1602 tonnes valued at Rs. 78.4 million. The corresponding exports in the same period of the previous year were 827 tonnes valued at Rs. 70.6 million. There has been a fall in the unit export price in the period, the main reason being the substantial increase in the country's production of cardamom.

Major importers of Indian cardamom continue to be Kuwait (32 per cent), Saudi Arabia (31 per cent), U.S.S.R. (7 per cent), Japan (5 per cent), Qatar and Trucial Oman (3 per cent) and Bahrain Islands (3 per cent).

The area under cardamom cultivation in the country is 81,566 hectares. Distributed among three States, namely, Kerala (47266 hectares), Mysore (28294 hectares) and Tamil Nadu (6316 hectares). The production of cardamom 1970-71 was 3170 tonnes against 2300 tonnes during 1969-70. The preliminary estimates of production during the 1971-72 (crop year) are 2300 tonnes.

The scheme for the control of a disease known as 'Katte' in the cardamom plantations is being effectively implemented. An area of 8872 acres was covered under the scheme during 1970-71. In the following year an area of 8243 acres has been covered. About 0.84 million healthy seedlings have been supplied to the cardamom growers during 1971-72. Also departmental nurseries have been opened to supply potentially high-yielding and disease free seedlings for replanting.

EXPORT PERFORMANCE OF KANDLA FREE TRADE ZONE

The export performance of the manufacturing units that have come up in the Kandla Free Trade Zone amounted to Rs. 206 million. During January-October 1971 the exports from the Zone were valued at Rs. 4.6 million.

During 1971 many more units went into production in the Free Trade Zone. 18 industrial establishments have so far been set up in the Zone out of which 14 units are already working. It is expected that another three to four big units will be commissioned shortly. The total number of approved entrepreneurs on the current list of the free trade zone stands at about fifty. Small scale industrial units are being particularly encouraged to set up their units in the zone.

OFFICE MACHINES ACTIVE IN EXPORT TRADE

Recent months have proved that India-made office machines are becoming more popular abroad. During April-August 1971 the export value of these products amounted to Rs. 12 million which was almost double the value of exports effected in the corresponding period of the preceding year.

Statistical machines constitute the principal area where export dynamism has been evident. Punchers, collators, sorters, reproducers and tabulators are among the statistical machines sought by the world markets including France, German Federal Republic. New Zealand, Netherlands, Australia and the U.K.

Among other varieties of office machines that have secured a foot hold in the international markets are typewriters, duplicating machines and parts of statistical machines.

It is creditable that while in the full preceding year (1970-71) the export value of office machines was Rs. 19.6 million, even the five months of the current financial year have already reached the level of Rs. 12 million.

SUGAR EXPORTS TREBLED

As compared to the Rs. 64.44 million worth of export performance of sugar during April-August 1970, the comparable period of 1971 witnessed a record rise to reach a level of Rs. 212.54 million. Of this, the export of centrifugal sugar amounted to Rs. 138 million. U.S.A. emerged as the major market with an intake value of Rs. 55 million. The other important purchasers were U.K., Canada and Malaysia.

The export value of refined sugar products in this period was Rs. 70 million. Ceylon, Vietnam Republic and Kenya were the major customers. The export of molasses, both edible and inedible, was mainly in the direction of Netherlands which accounted for about 50 per cent of the total offtake of over Rs. 4 million.

Interestingly, the export value even during the first five months of 1971-72 reached the level of about Rs. 213 million while it was Rs. 293 million in the entire year of 1970-71. This is a clear indication of the very active export trend in the area.

FACILITIES FOR IMPROVING EXPORT PRODUCTION

The Ministries of Foreign Trade and Industrial Development of the Government of India are presently engaged in drawing up concrete export production plans with the assistance of other administrative Ministries concerned in respect of items having maximum export potential. About 20 product lines have been identified to begin with and 10 working groups set up in the concerned Ministries. The working groups are expected to pinpoint specific products for export potential, review existing capacity and production including export production, estimated demand-internal and external and identify gaps in existing capacities in regard to their ranges - specifications, quality and deficiency in quantity and plan both at the macro and micro levels for the expansion and creation of capacities sufficient to meet the export target. Some of the Working Groups have already identified the products as also the industrial firms dealing with them for development of exports. The work in respect of remaining products is in progress.

The Government of India are keenly desirous of assisting all competent concerns to expand and become more efficient in exporting over a period of time thereby enlarging the number of exporting units. A scheme has therefore been evolved to assist industrial units desiring to enter the export field and build up their export potential with a view to becoming eligible for the preferential treatment to be accorded to export-oriented units. The industrial units that are not exporting currently or which are exporting insufficiently will be encouraged to put forward phased programmes of export of their products. Facilities for import of capital goods are made available to the units that are not exporting at present under the Phased Export Programme.

Import of capital goods by export oriented industries is allowed from out of a special allocation of free foreign exchange and other credits. High priority is given in the allotment of capital goods, equipment, dies, jigs (not indigenously manufactured) to such export units for increased exports for purposes of expansion, modernisation and diversification of production facilities. These facilities are given to manufacturers with good export performance so that they might be able to further intensify their export effort.

The policy relating to the imposition and implementation of export obligations has also been streamlined. In several cases while granting import licences for capital goods or industrial licences or approvals for foreign collaboration, a condition is imposed that the beneficiary would effect exports of his products up to a prescribed quantum within a specified time limit. Exports effected against such commitments would also qualify for the benefits available under the Registered Exporters' Policy.

REGULATION OF CASHEW NUT TRADE

Pursuant to the setting up of the Cashew Corporation Limited as a subsidiary to the State Trading Corporation of India, effective arrangements have been made for adequate, timely and uninterrupted supplies of raw cashew nuts at stable prices to export oriented units. The Corporation succeeded in effecting imports from Kenya and Tanzania for the first time with weight and quality guarantees.

One benefit of the canalisation of raw cashew nuts through the Corporation has been the optimal utilisation of foreign exchange outgo through a regulated intake of imports. During the period April-October 1971, the imports of cashew nuts stood at Rs. 168.8 million while exports of cashew kernels were of the order of Rs. 406.5 million thus resulting in net earning of foreign exchange to the tune of Rs. 237.7 million in the same period. The net earnings in the corresponding period of 1970 were about Rs. 156 million; imports were Rs. 205 million in the year and export Rs. 361.1 million.

The Corporation is engaged in establishing new areas of imports of raw cashew nuts other than East Africa also. It is also taking a direct role in finding new countries for export of cashew kernels. For the last one year, it has exported, through the State Trading Corporation or directly, cashew kernels worth about Rs. 2.1 million.

Imports of raw cashew nuts were allowed under Open General Licence prior to the decision to canalise them through the Corporation, effective from September 1, 1970.

PAK AND THIRD COUNTRIES CARGO BAN REMOVED

The Government of India have decided to lift the ban on cargo moving between Pakistan and third countries via Indian ports. The direct trade between India and Pakistan would, however, continue to be prohibited. The earlier orders banning indirect trade with Pakistan have been repealed as a reciprocal measure consequent on Pakistan's withdrawal of its ordinance providing for detention and seizure of Indian ships, aircraft and goods.

INDIA'S PARTICIPATION IN POZNAN FAIR

India is to participate in the Poznan International Fair (Poland) during June 11 to 20, 1972.

The fair has specials ignificance for the Government of India, who are organising the participation, as both the countries have concluded long term arrangements for purchasing urea and sulphur from Poland. Poland is expected to buy additional engineering and non-traditional goods from India. There are also prominent prospects for India textile machinery, hand and small tools, electric equipment and installation etc.

The terms of trade and payment between India and Poland are regulated by a five-year trade agreement concluded in October 1968. The main items of export from India to that country are cold storage plants, pipes and tubes, weighing machines, air compressors, refrigeration machinery, microscopes, diamond tools, scientific instruments, machine tools, textile machinery, automobile parts, electric meters, cables, diesel trucks, sewing machines, typewriters, cotton textiles, jute goods, tea, coffee, pepper, spices and tobacco.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

ELECTRONICS INDUSTRY

Recent years in India have witnessed a prominent progress in diversification and production of electronic items. Output of the industry increased from Rs. 265 million in 1964-65 to Rs. 1050 million in 1969 and Rs. 1500 million in 1970.

Making a modest beginning in the 50s, the industry today turns out entertainment electronic equipment like radio receivers, television receivers, P.A. equipment, tape recorders, record players, amplifiers, cinematographic equipment, professional electronic equipment like testing instruments and equipment, computers etc. and a wide range of electronic components such as resistors, capacitors, semi conductors, ferrites, relays, connector etc.

Entertainment Electronics

From 300,000 radio receivers in 1961, production by the large scale sector has reached 1.77 million nos. in 1970 and 1.97 million nos. in 1971. With 14 units in the line the large scale sector has a production capacity of 2.3 million radio sets per annum. The total licensed capacity till the end of 1971 was of the order of 3.0 million nos. Besides, there is a large number of small scale units in the country engaged in the manufacture of radio receivers. Some of the manufacturing units have developed special types of radio receivers for export markets.

The radio components sector has also progressed simultaneously. Besides metallic parts and fittings, transformer coils, cabinets, dials, knobs etc., this section turns out essential components like loudspeakers, band change switches, potentiometers, gang condensers, carbon resistors, paper capacitors, electrolytic capacitors, mica and ceramic capacitors, plastic film capacitors, valves, transistors, diodes etc. With the rising production of components the import content of a radio set has been reduced from Rs. 11.50 in 1966 to Rs. 1.00 in 1970 and to Rs. 0.75 in 1971. This too will be further reduced with the increasing availability of electronic components in the country.

Started in 1969, production of T.V. receivers in the country increased to 7800 nos. in 1971 from 5130 nos. in 1970 and 1266 in 1969. The installed capacity too rose from 10,000 nos. in 1970 to 20,000 nos. in 1971. The total licensed capacity till the end of 1971 was 50,000 nos. Recently a letter of intent has been issued to a unit for the manufacture of 20,000 nos. of T.V. sets.

In the field of T.V. receivers too, the foreign exchange content per set has been reduced from Rs. 260/- earlier to Rs. 90/- in 1971. This was made possible due to the indigenous availability of picture tubes and some of the electronic valves. M/s. Bharat Electronics Ltd. Bangalore has since started the manufacture of these items. It is expected that it will be further reduced as soon as the electronic components industry takes up more items in its production stream. Steps are being taken to manufacture components like deflection coils, EHT transformers, tuners etc. which consume a good portion of foreign exchange in a T.V. receiver.

With two units in the line the actual production of record players/reproducers in 1971 was of the order of about 69,100 nos as compared to 48,520 nos in 1970. With the addition of one more production unit in the year the installed capacity also rose to 120,000 nos. from 36,000 nos. in the previous year. The total licensed capacity till the of end of 1971 was about 206,000 nos. Of this 100,000 nos. was licensed in 1971 alone. One firm has also started the manufacture of sterophonic amplifiers. The output of PA equipment also went up in 1971 to 4200 nos from 3100 nos. in the previous year. Production of tape recorders has also been established in the country. Manufacture of professional tape recorders for All India Radio has also been taken up by M/s. Bharat Electronics Ltd. Bangalore. The unit has also taken up the production of T.V. transmitters and studio equipment for the proposed T.V. stations in the country.

Reduction of import content in record players will be made possible with the indigenous manufacture of micromotors, cartridges, stylus etc. Similarly in the cases of tape recorders, reduction can be achieved by establishing manufacture of micro-motors, tape decks and magnetic heads etc. Steps are already underway for the manufacture of these components indigensously.

Professional Electronic Equipment

Production of professional eleectronic instruments and equipment has been making a gradual increase in recent years. The outturn in 1971 estimated at Rs. 32.5 million worth is a 30 per cent increase over the 1970 production at Rs. 24.9 million and a 75.7 per cent increase as compared to the 1969 output of Rs. 18.4 million. The industry has been diversifying its range of production and many new instruments have been added to the production line.

During 1971 such new items as single channel analyser, ultrasonic flaw detector, frequency counter, pulse height discriminator, geiger counter, timers, flashers, process control equipment and traffic control equipment, voltage dependent resistors, automatic solid state voltage regulator and stabilizer, solid state variable speed drive, electronic desk calculator, single phase preventer, electronic solid state counter including digital clocks and precision timers and magnetic tapes have been added to the manufacture line. In some of the instruments new ranges have been added like multichannel analyser against single channel, oscilloscope from 20 to 50 Mcs, AM/FM signal generator, R.F. wattmeter etc. Contributing to the diversification of production some of the manufactures have taken up even odd instruments for which the demand is currently limited as this will result in import substitution and foreign exchange saving. The small scale sector too are turning out a large variety of electronic instruments.

The use of computers is gaining ground in the country. There are about 160 digital computers in operation in India at present. Computer development in the country started in 1954 when attempts were made to develop a general purpose digital computer. The machine was completed in 1960. Subsequently another machine was built in 1966. More recently, organisations like the Tata Institute of Fundamental Research and Bhabha Atomic Research Centre have successfully completed the development of digital computers of contemporary design.

With one more unit having gone into production in 1971, there were two units in that year with total capacity for turning out 38 computer systems. The actual turnover in 1971 was of the order of 23 systems.

It is estimated that the requirement of small and medium sized computers in the country during the Fourth Plan period (1969-74) would be 75 nos in the case of general purpose systems and 100 nos for real time systems. To meet the demand especially for real time systems the Electronics Corporation of India Ltd (ECIL) Hyderabad has also entered the production line. ECIL is currently engaged in the manufacture of a small, high speed digital computer originally designed and developed at Bhabha Atomic Research Centre. This computer is manufactured mainly using indigenous components except for a few items like ferrite stack and electromechanical peripheral equipment.

Electronic Components

The electronic components sector has also made good headway in the past few years. The production of various components in the years 1969, 1970 and 1971 were: transistors and diodes 17.36 million nos, 27.28 million nos and 35.20 million nos; receiving valves 2.84 million nos, 5.01 million nos and 6.1 million nos; carbon film resistors 49.01 million nos. 60.78 million nos and 95.12 million nos; potentiometres 2.09 million nos, 3.36 million nos and 4.72 million nos; loudspeakers 2.03 million nos, 2.19 million nos and 2.22 million nos; gang condensers 1.83 million nos, 2.00 million nos and 2.33 million nos; band change switches 1.46 million nos, 1.98 million nos and 2.89 million nos; Paper capacitors 8.18 million nos, 8.01 nos and 6.30 million nos; ceramic capacitors 28.07 million nos, 36.61 million nos and 43.18 million nos; plastic film capacitors 23.89 million nos, 27.97 million nos and 29.90 million nos; electrolytic capacitors 10.15 million nos, 13.38 million nos and 13.45 million nos; ferric rods/cores 1.91 million nos; 162.30 tonnes and 113.55 tonnes and permanent magnets 268 tonnes, 375.2 tonnes and 409.86 tonnes. Production of T. V. picture tubes which stood at only 2315 nos. in 1970 increased to 12030 nos in 1971.

About 4 new units have gone into production of electronic components in 1971. The total output value of electronic components by units borne on the list of Directorate General of Technical Development is about Rs. 220 to 230 million. Besides these, manufacture of computer components is also being taken up. A large number of letters of intent has been issued for capacity generation for electronic components. It is expected that in the next few years the output of this sector will go up considerably.

Research and Development

Research and product davelopment are a continuous process in electronics industry. Besides the manufacturing units who have their own research departments, individual laboratories too are engaged in electronic research.

The Central Electronic Engineering Research Institute, (CEERI) Pilani has developed indigenous knowhow not only for T.V. receivers and tape recorders but also for such accessories like transistorised T.V. vidicon camera, T.V. pattern generator, T.V. pulse generator, T.V. video monitor, T.V. antennas, video and pulse distribution amplifier, mixer, power and stereo amplifiers, transistor headers, varacter diodes etc.

The electronics system Division of the Space Research Organisation has also developed T.V. sets for the satellite television instructional experiment. The sets have been developed in three sizes–11 inches, 19 inches and 23 inches.

Many other research organisations have developed a large number of components like nickel cadmium cells, metal oxide resistors, capacitors, ferrites, microphones etc.

Exports

In addition to the growing international demand, Indian electronic goods have secured for themselves a wide export market. Starting with just Rs. 800,000 in 1966-67, electronic equipment exports touched Rs. 50 million in 1970-71 and an estimated figure of Rs. 75 million in 1969-70. Of this, radios and components fetched as much as Rs. 19.29 million in 1970-71.

It is estimated that during the Fourth Plan Period (1969-74) the aggregate production of electronic goods would be around Rs. 12000 million and the aggregate exports would reach Rs. 880 million.

Considering the export potential, the Trade Development Authority (TDA) has taken up electronic equipment as one of the items for export development. As a fillip to the export effort a bonded processing and warehousing facility for assemblies and sub-assemblies of electronic equipment is being set up by TDA at Bombay.

The specific items that are proposed to be processed at the electronic project are electronic components like IF-LF transformers and parts, capacitors of electrolytic, ceramic and foil nature, loudspeakers, radios, high-power and Hi-fi; P.V.C. gang condensors and trimmers, telescopic aerials for radios and antennae, switches of rotary, push button and piano types; valves, semi-conductors, integrated circuits; valve holders and relays and resistors. The sub-assemblies at the project include timers including for TV and FT; IF : LF and Power supply units for TV receivers. The electronic equipment to be processed at the project for export includes electronic timers, black and white TV receivers, transistor radio receivers, electronic desk calculators, tape recorders including cassettes, amplifiers, record players, walkie and talkie systems as well as testing equipment.

Another area of export potential is computer software. With the available talent in the country software programmes can be made available at a cost much lower than that of developed countries. The Government of India's proposal to allow import of computers against a guarantee to export twice the value of software or other computer services in five years has generated good interest.

India has the second largest diversified electronics industry in Asia after Japan. The prnduct range developed by the country in this line even during a brief period is indicative of its prominent place in the future of industrial development.

SELF-RELIANCE IN STEEL TECHNOLOGY

A major step towards technological self-reliance has been taken with the decision to set up a Rs. 5 million sponge iron pilot project at the National Metallurgical Laboratory, Jamshedpur (NML). The project which has already been initiated is expected to be commissioned by the middle of 1973.

The NML took the initiative early in 1970 to develop a process for sponge iron production suitable to Indian conditions and using available iron ores and coals. The Laboratory was able to produce high quality sponge iron on tonnage quantities by October 1970. For this purpose it adapted its existing 30 ft, kiln. The Planning Commission, however, recommended in December 1970 a larger capacity for the pilot project, which the NML will adopt.

Sponge iron is a product of direct reduction process which aims at bypassing the capital intensive coke-oven/blast furnace complexes requiring high quality coking coals for pig iron production. High-quality sponge iron can be directly melted in electric arc furnaces for production of high quality steel. It can also be used for charging in LD Converters.

Sponge iron of a lesser quality can also be an attractive food material for established blast furnace to reduce the coke consumption and the growing pressure on coking coal areas. Establishment of sponge iron will thus not only meet the present shortage of scrap for steel melting units but would also serve the important purpose of establishing primary metal smelting capacities in the country. This will help increase the overall production of steel, distributed among a number of plants.

All the material handling equipment, the reduction furnace coolers and project handling equipment needed for the NML pilot project can be manufactured indigenously. A large portion of instrumentation is also manufactured in the country.

TOWARDS OIL SELF-SUFFICIENCY

With a turnover exceeding Rs. 7200 million, the Indian Oil Corporation earned a net profit of Rs. 160

million during 1970-71 in which year the Corporation marketed about 12 million kiloliters meeting 52 per cent of the country's petroleum requirements. Turnover-wise, the Corporation has emerged as the biggest company in India both in private and public sectors. In fact the Directory of industrial companies compiled annually by the U.S. financial journal 'Fortune' has in its 1971 issue listed the Corporation as the largest non-Japanese company in Asia in terms of their sales. In order of its size it is listed as the 168th of the world's 200 largest non-US industrial corporations.

In 1970-71, the Indian Oil chain of refineries processed 634 million tonnes of crude oil. The fuel part of the Haldia refinery now under construction will go on stream during the first quarter of 1973 and the Lube complex in mid-1973. The Corporation has generated internal resources totalling about Rs. 1200 million in the year. India has by now acquired enough technical know-how and skill to design, construct and operate the Haldia refinery without much foreign dependence.

The transportation of petroleum products through the pipelines is noteworthy. All the four major pipelines accounted for the movement of 3 million tonnes during the year. By the end of the year under review, it had distribution facilities at 24 port and pipelines installations, one inland installation, 359 upcountry depots and over 3000 retail dealers. It had developed sophisticated aircraft refuelling sacilities at 68 air fields which accounted for 70 per cent of the company's business in the country.

The Corporation exported petroleum products valued at Rs. 35.3 million. The country is will set on the path of selfsufficiency in oil and the corporation is assigned a major role to achieve the objective.

PRODUCTION TRENDS OF PAPER AND PAPER BOARD

The production capacity of paper and paperboard increased to 768,000 tonnes during 1970 from 730,000 tonnes during 1969. The production value in 1970 was of the order of Rs. 1480 million. There are 57 units that are active in this line of manufacture.

As shortage of certain varieties of paper like printing paper of substance below 60 grams used in the production of text books and exercise books has been experienced, the setting up of new units or substantial expansion of the existing units has been encouraged wherever the raw material situation permitted. Also crash programmes are being undertaken to step up production in existing units by the production of balancing equipment and speeding up machines. It is expected that the crash programme would add 130,000 tonnes per annum to the existing capacity and 100,000 tonnes to production.

One unit manufacturing newsprint had a capacity of 44400 tonnes in 1970 and produced 37,340 tonnes at a value of Rs. 46 million in that year. Substantial expansion of the mill is under active implementation. Also M/s. Hindustan Paper Corporation which has been set up recently as a Government-undertaking have a proposal to establish a new unit for newsprint manufacture in Kerala with an annual capacity of 75,000 tonnes.

The existing capacity for rayon grade pulp is 75,000 tonnes (1970) of which the production was 40,000 tonnes in that year. In respect of paper grade pulp the capacity in 1970 was 22,500 tonnes and production 24,000 tonnes. After meeting the indigenous demand of bleached and unbleached grades of bamboo pulp, 8000 tonnes of the pulp were exported.

In 1970-71, the overall export value of paper and paperboard and manufactures was Rs. 54 million as against Rs. 48.8 million in the preceding year. It the former year the export value of paper and paperboard was Rs. 39.37 million and that of the articles made of paper, pulp, or paperboard was Rs. 14.7 million.

DEVELOPMENT OF ALCOHOL INDUSTRY

With the rapid development of alcohol based industries, alcohol has emerged as an important raw material in India. The production of alcohol depends on the availability of molasses, a bye-product in the production of sugar. With 67 units engaged in alcohol manufacture the installed capacity in the line was

319,205 kilolitres in 1970 in which year the production was 253,392 kilolitres valued at Rs. 60 million. The years 1969 and 1970 having been good sugar years, sizeable surplus of alcohol was released for export.

Among the alcohols exported during 1970-71 methyl alcohol was supplied mainly to Kuwait and the Arab Republic of Egypt at a value of Rs. 1.12 million; butyl alcohol to Netherlands at Rs. 0.5 million; ethylene glycol mainly to Netherlands at a value of Rs. 0.4 million and undenatured ethyl alcohol to France at Rs. 3.3 million. The production of beer has increased from 23,900 kilolitre to 29,825 kilolitre in 1970. The beer production is likely to go up in the near future with more new units going into production. Some exports of beer were effected to Japan and Sudan during 1970-71. Small quantities of brandy, liquers, whisky and other distilled alcoholic beverages were also supplied overseas in the year.

BALL AND ROLLER BEARINGS INDUSTRY

The ball and roller bearing industy has been faring well in India. Its production in 1970 was of the order of 17.5 million numbers which was a 30 per cent improvement over the 13.41 million numbers in 1969. There are seven units that are now engaged in the production of the bearings. Plans for expansion of the capacity to meet the rising domestic demand are well underway.

The number of types and sizes of bearings in production was about 388 as in 1970 which include several new types and sizes of tapered and cylindrical roller bearings and needle rollers and needle bushes.

The industry has already made some mark in the export market. During 1970-71, the export value of ball or roller bearings and parts earned Rs. 1.67 million worth of foreign exchage. Among the bearings exported were adopter ball bearings not exceeding 50 mm or two inch bore diameter, ball bearings other than taper bearings up to 50 mm, thrust ball bearing between 50 to 100 mm, tapered roller bearings up to 100 mm., roller bearings above 100 mm bore, forged steel balls and ball roller bearing parts. Interestingly, the bearings have been exported to countries like Argentina, Italy, France, Greece and the U.K. In addition, substantial exports of bearings do take place as fitments in finished products like ceiling fans, industrial machinery, electric motors; pumps and automobiles.

In the first five month period of 1971-72 (April-August, 71) the export value of these bearings amounted to Rs. 0.6 million. Substantial supplies were effected to U.S.A. in respect of forged steel balls in this period at a value of nearly Rs. 0.3 million.

NEW ACCESSORIES FOR RAILWAYS

The first prototype tacho-generator manufactured entirely out of indigenous components, is now undergoing service trials on one of the broad gauge diesel electric locomotives. Indigenous development of the tacho-generator will expedite manufacture of type 'E' excitation control equipment for diesel electric locomotives.

Development of the AG 1404 AZ tacho-generator was taken up by the Traction Motor Engineering Division of Heavy Electricals, Bhopal about two years back, to replace the imported ones.

Two more items have been developed and put on the production stream by HEIL in recent months.

The manufacture of power fingers, used in the reversers and power brake switches for 1,000 amp. application on 2600 hp broad gauge diesel electrical locomotives, has been taken up. These power fingers function as movable contacts and have therefore to be of flexible construction. For this reason, these are manufactured in copper braids. Another important design requirement of these power fingers is that they have to be accommodated within a limited space.

Another item is piston insulators which are used in the assembly of various types of electro-pneumatic contactors for dc/ac electrical multiple unit trains and dc locomotives. These are used to insulate high tension moving power contacts at 1.5 to 3 kV DC from pneumatic operating system which is at an earth potential.

The manufacture of 3 types of piston insulators has been established. Each piston insulator has 2 inserts manufactured to close tolerances and are moulded by using requisite quantity of thermosetting moulding powder at controlled temperature, pressure and time. In order to ensure that sound piston insulator moulding has been produced, each moulding is subjected to withstand 25 kV AC for 1 minute.

Both these import substitution measures have yielded considerable saving in foreign exchange.

INDUSTRIAL JOINT VENTURES

Up to the end of December 1971 as many as 126 proposals for joint ventures abroad by the Indian industry have been approved by the Government. During 1971 itself, 21 projects received approval. Of the 126 projects, 29 have already gone into production and 59 are in various stages of implementation.

The Government of India have been encouraging entrepreneurs to set up industrial joint ventures abroad by contribution of indigenous machinery and equipment and technical know-how towards their share of equity. Industrialists are allowed to participate in such industrial ventures where there is surplus production/capacity of machinery in India and where internal demand for the production is largely covered. The instrument of joint ventures is being adopted as an aid to encourage export trade as also for promoting economic cooperation among the developing countries.

KORBA FERTILIZER PROJECT

The tenth fertilizer unit set up by the Fertilizer Corporation of India and the third unit based on coal as feedstock, is to come up at Korba in Madhya Pradesh. The Korba plant is expected to be commissioned in the latter half of 1975 and will produce 228,000 tonnes of Nitrogen annually in the form of 495,000 tonnes of urea. The Fertilizer produced at the plant would save Rs. 340 million in foreign exchange by replacing import of plant nutrients.

The setting up of a fertilizer plant based on indigenously available coal reflects the Corporation's effort to acquire as large a measure of self-sufficiency as possible in the matter of feedstocks.

The other two coal based fertilizer plants are coming up at Talcher in Orissa and Ramagundam in Andhra Pradesh.

WHEAT PRODUCTION EXPECTED TO REACH ALL TIME HIGH

The wheat production in India in the current harvest season (beginning February) is expected to reach an all time high at an estimated 26 million tonnes which will exceed the Fourth Plan target by two million tonnes. Rice production has also been picking up fast and it has been decided to stop imports of rice for domestic consumption. Imports of wheat from U. S. A. under PL 480 had already been stopped since December 1971.

STEEL SELF-SUFFICIENCY WITHIN TWO YEARS

Self-sufficiency in steel other than special steel is expected to be achieved within two years if the present rate of production could be increased from sixtyseven to 82 per oent of the existing capacity as anticipated. The production of salable steel during 1970 was 4.5 million tonnes as against total available capacity of 6 million tonnes.

Taking into consideration an additional annual demand of 500,000 tonnes, it would be possible to meet the country's requirements by increasing the production at least by 15 per cent. It is expected that five mini steel plants which had already been sanctioned will go into production by 1973-74. It is also hoped that the total cost of import of steel from Rs. 2000 million will be reduced to Rs. 500 million within the next two years.

PROGRESS IN PACKAGING RESEARCH

Set up to facilitate improved practices of packaging as an aid to export effort, the Indian Institute of Packaging, Bombay developed better packaging methods for readymade garments. They have also evolved improved packaging methods for pharmaceuticals. The alternate packaging patterns evolved by the Institute for products like aluminium, electrodes, detergent sachets, pressure cookers, kraft paper, duplex board laminate, compressors, polyester fibre and aluminium castings have proved helpful in improving export trade in these products.

Preliminary studies have been undertaken by the Institute for several items including bar soaps, beverages, carbonising tissue, cosmetics, electrical appliances, food beverages, flowers, pesticides, resins and adhesives, scientific instruments and switch gear parts.

PAINT TO RETARD WOOD BURNING

The Central Building Research Institute, Roorkee has developed a fire-retardant paint with which it is possible to retard the burning of a wood to great extent by impregnation or surface treatment.

The paint is easy to prepare and apply and is free of odour. In the presence of heat, it produces an instant foam structure which insulates the substrate from the heat and retard the rate of spread of flame. It is water dilutable like emulsion paint and can be finished with an oil paint without affecting its fire-retardant properties.

Five kilogram batched have been prepared and performance tests have shown very good results. The main raw materials are polyvinyl acetate emulsion, ammonium phosphate and other special additives.

HELIUM-NEON LASERS DEVELOPED

The National Physical Laboratory, New Delhi has developed Helium-Neon lasers and dielectric multilayer interference filters. The He-Ne laser is a source of coherent radiation, and has many applications in scientific research, industry and in defence. It is a very convenient tool for the teaching of optics and is used in many experiments which are otherwise difficult to perform and demonstrate. In a research and development laboratory, it is an essential source for optical interferometry, holography, optical data processing, light scattering, photochemistry, etc. In industry this laser is used for testing optical systems, alignment of tools, carriageways. bridges, tunnels, etc. and for surveying. The estimated yearly demand at present will be about 200 lasers.

The dielectric interference filter is a device for isolating a narrow band of spectrum with minimum attenuation. The filters developed at NPL are suitable for use in the visible region from 0.5 to 0.8 microns. The main advantages of these are their high transmission quality and the fact that these can be made to give a pass band of any required width and wavelength. These are used in calorimeters, flame photometers and in many laboratory experiments.

The estimated demand for such filters is about 10,000 per year. At present the demand is met mainly by import of gelatin filters which have low transmission and are not very satisfactory.

TOGGLES FOR LEATHER DRYING

The Central Leather Research Institute, Madras has developed the design of toggles for drying leather by straining on meshed or perforated frames during the processing of hides and skins in the manufacture of leather. The invention relates to less expensive production of improved and efficient toggles for leather drying.

These are presently both imported and indigenously produced. The indigenously produced ones are costlier to the imported ones and some tanners are still dependent upon imported toggles. This is crippling, in a way, the production capacity and modernisation of their tanning operations. In this process, cheap forest wood as a base in place of aluminium stamping and aluminium decasting bases is used. By this method the toggles can be produced at a cheaper rate. These can be produced economically by a small scale industrailst or on cottage scale.

PUBLIC SECTOR IN INDIA

The public sector today occupies a central position in the Indian economy. From five units with a total investment of Rs. 290 million at the commencement of the First Five-year Plan, the sector reached a position in the middle of the Fourth Plan (March 31, 1969) of 85 units with a total investment of Rs. 39,020 million. The estimated figure of investment on March 31, 1970 is Rs. 45,000 million. The anticipated additional investment during the Fourth Five-Year Plan ending with 1974 is Rs. 34,000 million giving a total investment of Rs. 73,000 million.

This important sector of the economy has been developed, for three reasons: "to gain control of the commanding heights of the economy; to promote critical development in terms of social gain or strategic value rather than primarily on considerations of profit; and to provide commercial surpluses with which to finance further economic development" (Prime Minister of India). With these objects in view naturally the principal emphasis has been on the development of industry in areas where large scale investment is necessary — investment that could only be provided by the State.

The break-up of Rs. 39,020 million shows that investment has been of the scale of Rs. 13,050 million on steel and over Rs. 9,000 million on engineering, together amounting to more than half of the total investment in the public sector. Next comes chemicals with an investment of Rs. 4,200 million (10.8 per cent) petroleum with Rs. 4,030 million (10.33 per cent) and minerals with Rs. 2,990 million (7.66 per cent). The total of these five industries therefore, amounts to over 85 per cent of the total investment in the public sector.

Investment and Returns

These figures establish beyond doubt that the investment in the public sector has been essentially in those areas which are of most crucial importance to India's economic development. The steel industry at the time of independence was a small industry for a vast country like India. Heavy Engineering, which includes heavy electricals, is entirely new. The nationalised petroleum and chemical industries are really the first major efforts of India in this sphere. The investment of nearly Rs. 3000 million in mines and metals have undoubtedly led to substantial spurt of production.

But merely to give details of investment cannot complete the picture of the public sector. It has to be acknowledged that all these enormous investments are fetching even today a very low return. The figures for 1968-69 show that all the public sector undertakings made a total profit of Rs. 653.6 million while the losses were Rs. 922.3 million. The net balance is therefore of a loss of Rs. 268.7 million. Even if the losses of Hindustan Steel, amounting to Rs. 394.2 million are set aside, a profit of only Rs. 125.5 million, emerged. From the point of view of an investment of over Rs. 28,000 million (again excluding Hindustan Steel), it is obvious that the return is negligible.

It would be wrong however to look upon these concerns solely from the point of view of the profit they can gather each year. The very areas in which public sector enterprises have been started are those where the gestation period is bound to be long. In fact, private entrepreneurs who judge everything only by quick profits were reluctant to enter these areas just because of the vast investments involved and the period that it would require for the industry to give a proper return.

Basic infra - structure

These investments have to be really looked at from the point of view of contribution to national growth. Perhaps a pointed reference can be made to the investments in irrigation works amounting to nearly Rs. 2000 million during the two decades 1950-69. If one is to take this simply in terms of the returns of these investments, there has been no financial return worth the name because, by and large the farmers benefited heavily by these investments, are not prepared to pay. Yet the ecormous harvest of hundred million tonnes of foodgrains reaped in 1969-70 against a bare fifty million tonnes at the time of independence is the answer to any criticism that these investments have been wasteful and have not given "any proper return".

Perhaps the same thing can be said about the investment of around Rs. 50,000 million–even more than the capital investment in the public sector as a whole - which has been spent in improving and expanding the railways, roads, bridges and post and telegraphs and telecommunications, etc. But this capital investment is being justified rightly not by reference to the direct return but the return in indirect form by the widening of the bases of the infrastruecture of the country and by providing services to the entire economy helping to expand its growth. It is on the basis of the generous provision of infra-structure facilities throughout the country that private industry itself has been able to progress.

Looked at from this point of view, the major heavy industries in the country which are today almost entirely in the public sector, cannot be judged merely by the profit criterion. They also add to the basic infra-structure of the country's economy. They are the foundations on which the entire superstructure of the country's industries have been built. If these enormous investments were not taken to, the Indian industry would still be a small infant totally dependent on foreign aid and support as it was at the dawn of independence.

Production and Sales

Not only the total value of profits but also the total production and sales are relevant. Even if Hindustan Steel is taken, the total turnover in 1968-69 was Rs. 3200 million. Obviously these sales are to be looked upon as a contribution toward the national economy, for if Hindustan Steel has not producted Rs. 3200 million worth of steel, the country would be entirely dependent on imports from outside, with the consequent difficulties that the economy would have faced.

So also in case of the petrolum industry, the 1968-69 figures show that the turnover has been in the region of over Rs. 6000 million, the engineering and ship-building organisations Rs. 2310 million, mining and minerals Rs. 2030 million and chemicals Rs. 850 million. These are all significant contributions to the development of the national economy.

Taking another face of the working of Hindustan Steel, it has produced since its inception 25 million tonnes of steel worth Rs. 14,000 million. Had Hindustan Steel not done this, the country would have to import this steel with the enormous expenditure that it necessarily involves, and that too, in foreign exchange. In fact, it is more than likely that the country's foreign exchange position would have prohibited these imports and consequentially Indian industry would have suffered enormously.

Development of technical skills

There are two other aspects also to which reference must be made. The first is that the building up of such a powerful public sector is not merely a question of investmeet of money or the construction of vast industrial complexes. It is also a matter of developing human skills, both technical and managerial, on a scale never before known in Indian history. The textile industry in India is almost an ancient industry; so also the sugar and light engineering industries. In these areas India has got technologists of repute who can stand in any contest in the world.

But the public sector took India into much more difficult and challenging spheres-steel and other metals, oil, heavy electricals, electronics and so on. The building up of these industries also meant the production of a generation of Indian engineers and technicians who can take their places with technicians and engineers in any country. This too is one of the foundations for future economic growth in our country, for, without such a cadre of well-equipped and dedicated engineers and technicians, there can be no progress.

Social overheads

Secondly, one of the reasons for losses or less profits incurred by the public sector enterprises is that they have taken a different view towards the question of provision of facilities to the worker than has been done in the private sector. For instance, Hindustan Steel has spent over Rs. 30 million on the maintenance of the townships in 1968-69. For the whole of the public sector, it is in the region of Rs. 156.6 million.

If the social overheads which include provision of school facilities, subsidy on transport etc. are also taken into account, the figure for Hindustan Steel alone is of Rs. 45.9 million. The total for all the public sector industries in this area is just under Rs. 100 million. There can be no doubt that providing decent living conditions to the workers who are working in the public sector undertakings have also placed a substantial burden on them and brought down the profits.

Under-utilisation

There is however the question of under-utilisation of capacity which is the principal weakness in most of the public sector undertakings today, and to a large extent is responsible for the losses. In Hindustan Steel, the precentage of utilisation of capacity in 1969-70 ranged from 74 per cent in Bilai, to 61 per cent in Rourkela and 51 per cent in Durgapur. In 1970-71, the position has deteriorated in both Rourkela and Durgapur to 57.7 per cent and 39.6 per cent respectively, while in Bhilai it has increased from 74 to 77 per cent. The utilisation capacity of Hindustan Steel as a whole is 61.2 per cent. Concentration in this area is vital as that alone can be decisive for changing the face of the public sector so far as steel is concerned.

The Heavy Engineering complex comprises, possibly the biggest concentration in the world, where at a single place heavy machinery of all descriptions can be produced. Yet, its utilisation is less than 25 per cent of its actual capacity. In Mining and Allied Machinery, the percentage is low, being under 20 per cent for 1969-70. And even of this production in Mining and Allied Machinery Corporation, in 1969-70, only 60 per cent was sold.

How is this situation to be changed? First of all, the autonomy of managament needs to be respected. Secondly, modern managerial leadership must be introduced more and more in the public sector. In a nut shell, this involves in making the decision-making process more and more broad based and involving at the first step all officers and then all employees in the process.

The development of modern managerial practices also takes with it the involvement of the workers more and more in management. And in its essence, this is workers' participation in management. In addition, there are many areas in which public sector organisations have to be decisively improved.

Inventories, in many cases, are far too large or are not scientifically planned; use of the computer system for plant production control and location of the weaknesses in the production process is still in many plants at a primitive stage or non-existent. Enforcement of strict principles of accounting which alone will ensure maximum economy is to be taken up in many organisations as an important task.

No one should be permitted to forget that the public sector is owned by the people and is run in their interest. And it is this that must provide the inspiration to bring about decisive changes that can ensure that the public sector makes its contribution to solving the very difficult problems of economic growth that face India today. □

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PETROL WAGONS TO EAST AFRICA

The Projects and Equipment Corporation, New Delhi has supplied the first consignment of 16 petrol wagons to East Africa out of a total order received for 100 wagons.

The Corporation exported railway equipment and wagons worth about Rs. 100 million in 1971-72. These exports were made to a number of countries including Poland, Hungary, Sudan, East Africa, Yugoslavia, Burma and Thailand.

They have orders worth about Rs. 540 million of railway wagons and equipment in 1972-73. The major portion of these exports would be to Yugoslavia, Iran, Poland and Hungary. They are also negotiating orders from countries of South East Asia, West Asia, Latin America and Europe. Some of these orders are expected to be finalised soon.

Besides the export trade in railway rolling stock, the Corporation has also supplied overseas, general engineering equipment, pumps, heavy machinery and textile machinery worth Rs. 80 million during 1971-72. They have already orders worth Rs. 140 to Rs. 160 million for these items. More orders for the products are pouring in and are expected to be of an additional value of Rs. 100 million.

The Corporation also supplies consultancy services and turnkey projects abroad. They are setting up a complete textile mill in the Arab Republic of Egypt. In close liaison with the leading sales organisations in India, the Corporation is poised to secure and undertake several new turnkey projects abroad. They are in a position to undertake the construction of railway lines, wagon-building plants, oil refineries, steel foundries, cement plants, chemical plants, industrial boilers and textile mills.

INDIA TO EXPORT BICYCLES TO U.S.A.

A bulk export order has been received by the Indian bicycle industry for the supply of speed gear bicycles. The order is to be executed by the Indian Consortium of Bicycle Manufacturers and has been secured in early 1972 by the Projects and Equipment Corporation, New Delhi. The shipments are to start within the next few months. According to a survey made by the Corporation, America provides large potential market for Indian made bicycles.

India is among the world's largest cycle manufacturing countries, on par with the U.S.S.R., U.S.A., Japan and West Germany. In 1970-71, bicycle production in India's organised sector was 2.08 million numbers; the anticipated output in 1971-72 is 2.3 million numbers. The production target for the Fourth Five Year Plan (by 1973-74) is 3.2 million numbers.

India's export trade of bicycles and parts has been recording an appreciable performance year after year; in 1960-61, the export value was Rs. 0.95 million, and in 1970-71 : Rs. 68.68 million.

TYRES AND TUBES TO NORTH KOREA

Automobile tyres and tubes made in India are active in international markets. During the nine month period April-December 1971, the export earnings of these products were higher at Rs. 44.69 million as compared to Rs. 43.67 million in the same period of 1970. In the full year of 1970-71, the export value in the line amounted to Rs. 55.38 million.

Recently North Korea placed an order on M/s. Dunlop India Limited, 57-B, Mirza Ghalib Street, Calcutta 16, for supply of tyres and tubes of a value of Rs. 22.09 million. The Indian firm received another order earlier in October 1971 from that country for the supply of these products at a value of Rs. 4.18 million.

India has achieved self-sufficiency in respect of practically all the important items made out of rubber. Automobile tyres and tubes constitute the major portion of rubber goods manufactured. The present capacity for their manufacture stands at 5.5 million numbers per annum. To achieve a capacity target of 8 million numbers for 1973-74, letters of intent have been issued to eight units for a combined capacity of 2.4 million numbers each of tyres and tubes.

Eight manufacturing units are engaged in the production of giant tyres with a capacity of a million numbers. Their actual production was slightly more than the capacity in 1970. Eight units are engaged in the production of giant tubes at an annual capacity of 1.78 million numbers and their output was 1.71 million numbers in 1970.

Tyres for motors, motorcycles and scooters have an annual capacity of 1.34 million nos. Their production was 966,000 nos; 166,000 nos; and 437,000 nos. respectively in 1970. Total capacity of tubes for motors,

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motor cycles and scooters is 1.46 million nos. Their production in 1970 was 1.02 million nos., 195,000 nos. and 263,000 nos. respectively.

The installed capacity for bicycle tyres and tubes are 24.38 million nos. and 22.20 million nos. and actual output in 1970 was 20.99 million nos. and 15.84 million nos. respectively.

The production of other varieties of tyres and tubes in 1970 was as follows: (Their capacities are mentioned within brackets) Aero tyres : 7 million nos (12 million nos); aero tubes 968,000 nos (5 million nos); A.D.V. tyres 176,000 nos (162,000 nos); A.D.V. tubes 191,000 Nos (180,000 nos), tractor tyres: 186,000 nos (160,000 nos), tractor tubes: 181,000 nos (165,000 nos); Off the road tyres: 9,710 nos (13,500 nos); Off the road tubes 9,550 nos. (13,500 nos) and cab tyres : 5.60 kilometres (20 kilometres).

PAPIER MACHE AND WOOD CARVINGS

Several countries including the U.K., U.S.A., Japan, Australia and Singapore have placed firm orders for the supply of papier mache and wood carvings on M/s. Asia Crafts, Srinagar. The value of the orders on hand are over Rs. 200,000. They have also received enquiries for additional export business of about Rs. 300,000. They anticipate much larger export prospects for wood carvings from several countries in the world in the near future. The firm has plans to improve the quantum and quality of production by undertaking training programmes for the local artisan families who have been engaged in these crafts over generations.

India's export trade in papier mache articles as artware totalled Rs. 640,855 during 1970-71. USA was the leading importer at a value of Rs. 388,855. Other buyers included France, German Federal Republic, Italy, Singapore, Netherlands and Japan.

Artwork in wood earns sizeable foreign exchange. In 1970-71, wooden work including carvings of sandal wood, shesham wood, walnut wood, inlaid work with ivory and other artware forms fetched as much as Rs. 24 million. Over 100 countries imported India's wood carvings in the year, many of which were from the industrialised world.

EXPORT OF MICA HEATING ELEMENTS

Good progres is noticeable in the export context of electric resistance elements. Sizeable quantity of these elements has already been supplied to Far East and West Asian countries by M/s. Asian Electric works, Bhandup, Bombay-78.

Recently the firm exported Murphy Richard type of mica heating elements to Singapore. They have also received orders in the current year from countries like Australia, Sudan, Hong Kong, Malaysia and Philippines.

MORE BUSINESS IN MARINE PRODUCTS

Lately there has been an upsurge in the execution of export orders by the marine product industry. In addition to what has been covered in the previous issue of this Weekly, information has now been received on the export orders of two Cochin firms.

M/s. Bluewater Fisheries Company, Cochin has on hand firm orders for shipment of 6000 kg. of shell on shrimps to Japan; and shrimps, lobster tails and froglegs to U.S.A. These supplies are to have been completed during February 1972. The firm will soon instal a plate freezer of 4 tonne capacity and expects to nearly treble their production and export. Aside from the U.S. and Japanese markets, they have also received enquiries from France, Hong Kong and Singapore for the aforementioned products and cuttlefish.

Another firm M/s. Cifoods, Cochin has plans to instal additional plant capacity to be able to export over Rs. 10 million during 1972. For the supply of frozen prawns, the firm has booked firm orders with the U.S.A., Japan and France. Supplies to the U.S.A. and Japan have already been executed during December last while those to France are under delivery. While their exports to France will be for the first time, their supplies to the Japanese market are against repeat orders. The firm has succeeded in improving the quality of their master cartons and the quality of inner cartons received appreciation from customers abroad. In addition to supplying prawns they have also manufactured and marketed lobsters.

PARTICIPATION IN EUROPEAN MEN'S EXHIBITION

Indian firms that participated in the European Men's Exhibition held in Paris during February 12–15, 1972 succeeded in securing business for Rs. 3.3 million. The Indian participation at the Exhibition was organised by the Cotton Textiles Export Promotion Council, Engineering Centre, 9 Mathew Road, Bombay 4.

In addition to the orders booked for Rs. 3.3 million further business is under negotiation to the tune of Rs. 1.5 million.

Seven participants from India were responsible for securing the business at the Exhibition. M/s. Rolex Hosiery Pvt. Ltd. secured orders worth Rs. one million. M/s. Wings Wear Pvt. Ltd. finalised deals worth Rs. 650,000. M/s. Nath Brothers Exim. International Pvt. Ltd. succeeded in booking the orders for Rs. 550,000. The rest of the business was shared among M/s. Hindustan Apparel Industries (Rs. 400,000) M/s. Burlington's Exports (Rs. 350,000), M/s. Chemicals and Fibres of India Ltd. (Rs. 200,000) and M/s. ILAC Limited (Rs. 150,000).

EXPORT PERFORMANCE AND POTENTIAL

FOREIGN TRADE IN 1971

A REVIEW

Registering an increase of Rs. 593 million or 3.9 per cent over 1970, India's export trade including re-exports amounted to Rs. 15,771 million during 1971. The growth rate of exports in 1970 over 1969 was 10.3 per cent.

Imports during 1971 totalled Rs. 18,428 million as against Rs. 15,928 million in 1970. The adverse balance of trade was thus Rs. 2,657 million in 1971 as compared to Rs. 750 million in 1970.

A month-wise analysis of export trade would reveal that February, March and May to July in 1971 registered considerable rises in export earnings compared to the corresponding months of 1970. Exports in January, April and August 1971 were not significantly different while during September–December, there was a marked decline as compared to the same period of 1970.

Export performance in 1971 was affected by a number of adverse factors, though their influence was somewhat moderated by some favourable developments in unit prices of tea and jute goods. The international currency crisis which erupted in August 1971, for instance, added to the uncertainties faced by the export trade in this country as much as all over the world. The imposition of 10 per cent surcharge on imports by the U.S.A. in August last also appears to have affected the growth of some of India's non-traditional exports to that country. The continuing recession in the world iron and steel industry affected the exports of iron ore and manganese ore. There were also some shortage of critical inputs like iron and steel and raw cotton. The recent Indo-Pakistan conflict and the resultant shipping difficulties are also to be taken into account.

Happily, export demand for some of India's major export earners like jute manufactures and tea has come to revive. The unit prices fetched by a number of other products like tea, jute manufactures, cotton piecegoods, manganese ore, unmanufactured tobacco, fish, raw wool, raw cotton, lac, castor oil, coir yarn, and mats and sugar were higher during January–August 1971 compared to the same period of the preceding year.

Notwithstanding some temporary setbacks, the longterm outlook for India's export is indeed encouraging. The solution to the international monetary crisis and the return by the major trading nations to fixed exchange parities and the introduction of the Generalised Scheme of Prefrences (GSP) by a large number of developed countries are some of the encouraging factors in this context. The forthcoming entry of the United Kingdom into European Economic Community will, however, create difficulties for the country's export trade. But trade with Socialist and developing countries is being expanded to ensure that the realisation of overall export objectives will not be jeopardised.

During the period January-August 1971, export performance of several products has improved. The examples are jute manufactures, tea, sugar excluding molasses, engineering goods, tanned hides and skins, unmanufactured tobacco, spices, fish, handicrafts, cotton apparel, coffee, castor oil, chemicals and allied products, art silk fabrics, tobacco manufactures, lac, leather and canvas footwear and raw cotton.

Certain commodities, however, suffered decline in export trade during the same period. The examples are iron and steel, cotton yarn, tanned chrome, iron and steel scrap, iron ore, raw hides and skins, raw jute, oil cakes, ferro manganese and ferro alloys, cashew kernels and so on.

The export of jute manufactures increased from Rs. 1003 million in January-August 1970 to Rs. 1704 million in the same period of 1971. The improvement in terms of quantity was 156,000 tonnes from 320,000 tonnes to 476,000 tonnes. The unit price improved considerably. This dynamism emanated from the rise in overseas demand for jute manufactures from India in view of the happenings in Bangla Desh. The dwindling inventories of jute products with US bag and carpet makers induced them to replenish their stocks by way of increased imports from India. Exports to U.S.A. at Rs. 870 million during January-August 1971 more than doubled as compared with the same period of 1970. There was increase in respect of exports to U.S.S.R. too.

Exports of tea, at Rs. 877 million in the period under review of 1971 were higher by Rs. 266 million as compared with the exports of the same period in 1970. The higher export earnings were made possible both by an increase in quantum as well as unit value realisation. The quantity exported improved by 26.5 million kg. at 115.5 million kg. The unit value rose by about 11 per cent. The trend of rising exports is indicative that 1971-72 as a whole will witness a much higher value of the exports than 1970-71.

Despite shortfall of steel, exports of engineering goods rose to Rs. 825 million from Rs. 673 million showing growth rate of 23 per cent. Substantial increases were recorded in the offtake of auto and auto parts, textile machinery, wires and cables, bicycles and parts, steel castings, data processing machines, radio batteries etc. Wagons and coaches manufactured in India have come to establish international reputation as being competitive both in price and quality. Rising prospects of labour intensive exports, implementation of GSP, recent revaluation of Japanese Yen and West German Mark, are among the factors that would further lead to the competitiveness of India's engineering exports.

Exports of sugar at Rs. 307 million were higher by Rs. 258 million in the period under review. The supplies to U.S.A., Canada and U.K. substantially improved. Two new markets namely Republic of Vietnam and Malaysia were developed. The unit price realised also was higher. The shortfall in production this year, however, may check the export momentum.

Exports of leather and leather manufactures (excluding footwear) increased by Rs. 78 million to Rs. 545 million. Overseas supplies of E.I. tanned hides and skins have particularly looked up. Export of finished leather has also doubled, although chrome tanned leather registered decline mainly due to the decrease in offtake by U.S.S.R.

In respect of cotton textiles, export trade declined only marginally (by Rs. 2.9 million) to Rs. 414 million. Cotton yarn exports were not favourable (Rs. 76 million as against Rs. 214 million) as the major yarn growing countries like Burma, Ceylon and ARE reduced their intake added to the problem of domestic shortages in India itself. But cotton apparel exports were higher by Rs. 29 million at Rs. 73 million. India's exports of cotton textiles are subject to quantitative restrictions imposed by a number of industrial countries. In early 1972, U.K. imposed an import duty of 15 per cent on cotton fabrics imported from Commonwealth developing countries although the system of bilateral quotas is maintained. The need for diversifying textile exports both directionwise and varietywise is thus fully recognised in India.

Declining trend in exports of unmanufactured tobacco was arrested in the period reviewed. Export trade in the line improved by Rs. 64 million to Rs. 352 million during January-August, 1971. The Soviet Union and the U.K. mainly accounted for the increase. Some increases were recorded in exports to Japan and Irish Republic also. The increased export trade was due both to larger quantity offtake as also higher unit value realized.

Exports of spices continued the uptrend witnessed during the last three years. During January-August

1971, the export value of spices was Rs. 287 million (Rs. 36 million more than the same period of 1970). Exports to U.S.A., Ceylon, Hungary and Saudi Arabia improved markedly. Pepper exports were up by Rs. 10 million to Rs. 121 million. Cardamoms fetched Rs. 66 million (higher by Rs. 14 million). Among other varieties, exports of ginger and chillies improved, though turmeric registered decline. Export prospects of spices are bright.

Coffee exports, rose by Rs. 35 million to Rs. 175 million. The earning would have been higher but for the decline in the unit price.

Exports of fruits, vegetables and pulses was valued at Rs. 494 million (Rs. 54 million lower). Cashew Kernel exports fetched Rs. 398 million as compared to Rs. 421 million in the periods under review in 1971 and 1970 respectively. Reduced offtake by USSR and East Germany mainly contributed to the decline. Competition from East African countries and Brazil is a major factor.

Export of iron ore fell to Rs. 681 million from Rs. 727 million. To the principal market of Japan alone, exports fell by Rs. 35 million to Rs. 544 million. To West Europe also, there was a decline. However there was some improvement in the offtake by East Europe.

Fish exports recorded only a small improvement of Rs. 5 million to a level of Rs. 205.6 million. Inspite of lower quantum of exports of frozen prawns, earnings increased as a result of higher unit value realizations. On the other hand, export of canned prawns, dried prawns and frozen frog legs has shown a decline. Japan emerged as the biggest market for Indian fish during 1971. U.S.A.'s offtake declined.

Exports of chemicals and allied products, a growth item, increased from Rs. 173 million in January-August, 1970 to Rs. 198 million in the period under review. Items like dyes, agarbattis and coaltar chemicals, glycerine, soaps, cosmetics, crude drugs etc. improved, while export of drugs, pharmaceuticals and fine chemicals declined.

Exports of pearls, precious and semi-precious stones, unworked and worked, recovered in 1971 after suffering a set back in 1970. Export value during January-August 1971 was Rs. 291 million against Rs. 263 million in the same period of 1970. There was an appreciable rise in the overseas supply of handmade carpets and druggets, and metal ware (brass and copper), handprinted textiles, woodware etc.

During January-August 1971 India's exports to all regions of the world excepting Asia and Oceania have improved. Supplies to the American region were appreciably higher. To U.S.A. exports increased by over 40 per cent. There was a considerable improvement in respect of Canada and Latin American countries also. Supplies to Western Europe improved in general but to the ECM countries particularly there was a record improvement. Exports to East European countries were nearly 13 per cent higher. Though supplies to Poland and Yugoslavia marginally declined there was export improvement to all other East European countries. In the case of Africa, sales improved by Rs. 190 million to Rs. 896 million. Exports to Nigeria and Sudan more than doubled. Moderate increases were recorded in respect of Kenya, Morocco, Tanzania, and Zambia. Exports to ARE however suffered a marginal decline. In the ECAFE region to which the overall export from India declined, a major shortfall was in respect of Japan. Moderate increases were however recorded in exports to Afghanistan, Australia, Ceylon, Malaysia, Singapore, Hong Kong, and New Zealand.

CASHEW EXPORT EARNING UP

Exports of cashew kernels during the ten-month period April 1971 to January 1972 amounted to 54,184 tonnes valued at Rs. 550.2 million. This is higher by 25 per cent over the exports during the corresponding period of the previous year.

A quantity of 4,317 tonnes of cashew shell liquid valued at Rs. 4.8 million was also exported during this period.

The total import of raw cashew nut during the period under review amounted to 131,675 tonnes valued at Rs. 218.5 million as against 131,987 valued at Rs. 232.3 million during the corresponding period in the previous year.

The export of cashew kernels and shell liquid has registered an increase during January bringing foreign exchange to the tune of about Rs. 43.9 million.

GLASSWARE IMPROVES EXPORT TRADE

Recent months have witnessed encouraging demand from world markets for glassware made in India. In the nine months of 1971-72 (April-December 1971) the export supplies were valued at Rs. 12.6 million which was an encouraging improvement over the export performance in the corresponding period of the previous year. Export business has particularly brightened for glass mirrors, safety glass sheets, unworked sheet glass, vaccum flasks, and clinical thermometers.

Other items available for export by the glass industry include bottles and phials, scientific glass ware, glass beads and pearls, false pearls, figures and wired glass, glass vials, glass bangles and glass lampware.

During 1970-71 the export earnings of glass and glassware were of the order of Rs. 21.63 million. In order of importance, the major export earners were vaccum flasks, glass vials, figured and wired glass, unworked sheet glass, bottles and fials, scientific glassware, glass beads, and safety glass sheets.

EXPORT PERFORMANCE OF RUBBER MANUFACTURES

Export business in rubber manufactures has been improving lately. In the first nine months of 1971-72 (April-December 1971) the export value of these products was Rs. 31.32 million as against Rs. 28.49 million in the corresponding period of 1970-71. The rubber manufacture products earned Rs. 41.58 million during 1970-71 through exports. Export trade of these products in the full year of 1970-71 amounted to Rs. 41.58 million.

Rubber soled canvas footwear has emerged as an important item sought eagerly by the international markets. Against an export earning of Rs. 13.17 million during the first nine months of 1970-71 the same period of the following year witnessed an export growth to the extent of Rs. 21.13 million. Another product which improved its export performance was cycle tyres and tubes whose export earnings improved from Rs. 3.4 million to Rs. 3.9 million in the corresponding two periods. There are a host of other products exported in the group such as rubber footwear, rubber cots and apron for textile industry, rubber gloves, hoses, sheetings, beltings, hygienic and pharmaceutical rubber products and so on.

EXPORT TRADE IN SILK AND RAYON TEXTILES

Export of silk and rayon textiles for April 1971-January 1972 period aggregated to Rs. 82 million as compared to Rs. 58 million during the same period of 1970-71 thus registering an improvement of 40 per cent.

In the period under review in 1972 the fabrics earned Rs. 60.6 million, rayon tyre yarn Rs. 12.6 million, clothing and made-ups Rs. 3.8 million and hosiery and knitwear Rs. 2.3 million. Excepting in the case of clothing and made-ups, all the varieties of silk and rayon textiles registered sizeable increases in their export business in this period as compared to the corresponding period of 1970-71.

METAL SCRAP EXPORTS

India exported iron and steel scrap worth Rs. 69.5 million and non-ferrous metal scrap of about Rs. 3.9 million during 1970-71.

The export business of scrap has been canalised through the Metal Scrap Trade Corporation. Under 1971-72 Trade Policy cast iron borings, detinned bundles and mill scale scrap are freely allowed to be exported. Exports of these categories of scrap have been fairly satisfactory. In fact, the export of detinned bundles and mill scale during the year will be a record figure of 40800 tonnes and 85000 tonnes respectively. In the earlier year the export of these two categories was 9493 tonnes and 38753 tonnes respectively.

TECHNICAL TRAINING TO FILIPPINO PERSONNEL

The Government of India are to provide technical training facilities to the personnel from Philippines in a variety of industries.

The industries include vaccum technology, crystal growing, nuclear and radio-chemistry, industrial isotope radiography, medical uses of radio-isotopes, medical uses of radiation, industrial applications of radiation, nuclear physics, nuclear and radiation chemistry, digital technique for multichannel analyser, chemical engineering, metallurgy, water resources development, international course in management techniques for administration, telecommunication teleprinters, auto and trunk telephone, trunk exchange wireless, carrier and VFT equipment, general insurance and wireless.

These training facilities have been offered by India to the nominies of the Government of the Philippines under the Colombo Plan.

INDO - AFGHAN TRADE AGREEMENT

The new Trade Agreement between India and Afghanistan has been recently signed and would come into force from March 1, 1972 for a one-year period. Signed by Mr. M. Aref Ghauzi, the Afghan Minister of Commerce and Mr. L. N. Mishra, Indian Minister of Foreign Trade, the agreement aims at expansion and diversification of mutual trade.

Under the new arrangement the two countries have reaffirmed their resolve to promote and develop trade to mutual advantage and to eliminate concentration of the two-way trade in a few hands as also to remove difficulties in the existing system.

It was agreed that the two Governments would provide facilities for setting up a plant in Afghanistan as a joint venture for the production of extracts of medicinal herbs and plants grown in that country. India has offered to make use of these extracts for its pharmaceutical industry. Afghanistan has expressed desire to purchase medical and surgical instruments and other surgical supplies manufatured in India.

India's Minister of Foreign Trade expressed satisfaction that over the last decade the volume of Indo-Afghan trade grew from Rs. 60 million to about Rs. 240 million. Trade exchanges have, however, been confined mainly to the Afghan fruits and the Indian tea. The resolve to diversify the two-way trade was therefore welcomed. The Afghan Minister, remarked that his country was equally interested in expanding trade and economic relations with India to the maximum extent.

TRADE TALKS WITH NORTH KOREA

Representatives of the Government of the People's Democratic Republic of North Korea and India have recently reviewed the trade exchanges between the two countries. In 1971 the principal items of export from North Korea were magnesia clinker, special steel, graphite etc. while India mainly supplied high-speed diesel oil, motor gasoline maganese ore, jute products, engineering goods etc. The two-way trade volume in the year was of the order of Rs. 55 million. It was decided that the level of trade exchanges should be raised three-fold in 1972 to over that of the preceding year.

Apart from the items mentioned above, North Korean imports from India include basic refractories, anthracite, fluorspar, hops and peppermint oil. The Indian exports to that country other than the above include pig iron, passenger wagons, auto buses, tyres and tubes, various chemicals, paper products, cotton textiles, rayon textiles etc.

INDIAN MEMORANDUM TO U. K.

India has presented a Memorandum to the U.K. Government setting out her commoditywise suggestions for reducing adverse effects of British entry into European Economic Community on Indian exports to Britain. The memorandum has been recently handed over to the British Government by the Indian Ambassador at Brussels, it is learnt. The Memorandum aims at seeking British understanding of

India's problems before the enlarged Common Market tariffs would begin to operate in 1974.

Commenting on the Statement made by the British Foreign Secretary some time back that even after Britain's entry into Common Market, 80 per cent of Indian exports to that country would continue to enjoy zero rates of duty or would be included within the scope of EEC's Generalised Scheme of Preferences (GSP) the Indian Ambassador stated, that much would depend upon the Common Market's Scheme of 1974 to which Britain would have to align. The scheme will have to be worked out and it was precisely for this reason that India is anxious to apprise U.K. of her problems now so that the later can take into account in her discussions with EEC during the process of harmonisation of external tariffs.

No doubt, India has been pursuing the question of tariff preferences with EEC also and though the Community's approach was very sympathetic, its procedures are slow.

Regarding cotton textiles it was stated that India has been allotted an annual quota of 8385 tonnes including dutyfree exports within the general worldwide dutyfree quotas of 5600 tonnes. However, these concessions offered little benefit firstly because the total quota was small and there was a ceiling of 1300 tonnes in certain countries, which meant that any four countries could exhaust total world quota in one shipment each. Also since the quota periods were not clear, EEC could at any stage declare exhaustion.

This places exporters generally in a position of uncertainty and they are thus unable to take advantage of duty free textile exports.

ECONOMIC DEVELOPMENT AND INDUSTRIAL PROGRESS

AGRICULTURAL POSITION IN INDIA

With another year of substantial foodgrains harvest in 1971-72, India has embarked upon a crash programme of attaining self-sufficiency in cotton, pulses and oil seeds within a few years' time. According to the Minister of State for Food and Agriculture cotton production in India in the current financial year would be a million bales more than in 1970-71; it might be in the region of 5.6 million bales as against 4.6 million last year. Programmes have been initiated to intensify cotton cultivation further as also of oilseeds and pulses.

Foodgrain production is anticipated to exceed 110 million tonnes during 1971-72, stated the Minister. Of this, wheat would be around 26 million tonnes or roughly three million tonnes more than the previous year's yield. The rice production is also expected to increase by a millian tonnes despite setbacks in Andhra Pradesh, one of the principal rice-growing areas, because of the successes of summer paddy programmes in the northern States. Punjab alone would contribute some 800,000 tonnes of rice to the Central Pool this year. The Minister also mentioned the export prospects of wheat surpluses during the current year which might be sizeable.

Meanwhile the All India Final Estimates of Principal crops (1970-71) have been published by the Ministry of Agriculture. In the cereals group 101.45 million hectares were under cultivation in the year, of which rice occupied 37.43 million hectares, wheat 17.89 million hectares and other cereals including bajra, maize, ragi, barely and small millets occupied the rest hectarage. Total cereal production in the year was 96.24 million tonnes of which rice production was 42.45 million tonnes, wheat 23.25 million tonnes. Rice and wheat production in 1969-70 were 40.43 million tonnes and 20.09 million tonnes respectively.

About 22.42 million hectares were under pulses cultivation in the year under review (1970-71). The production was 11.58 million tonnes as against 11.69 million tonnes in the previous year.

Thus the total foodgrains production during 1970-71 was 107.81 million tonnes as against 99.50 million tonnes in 1969-70.

Turning to oilseeds, production of groundnuts, castor seed, sesamum, rapeseed and mustard, linseed and cotton seed respectively was 6.07 million tonnes, 0.14 million tonnes, 0.57 million tonnes, 1096 million tonnes, 0.47 million tonnes and 1.89 million tonnes.

Production of cotton was over 7 million tonnes, jute 4.9 million bales (of 180 kg. each), mesta 1.123 million bars. For the previous year, cotton, jute and mesta production respectively was 8 million tonnes, 5.6 million bales, and 1.13 million bales For these fibre groups, the total area under cultivation was over 7.7 million hectares.

The 1970-71 output of sugar in items of cane was 128.77 million tonnes against 135.02 million tonnes in the preceding year. In terms of gur, the production was 13.19 million tonnes and 13.78 million tonnes respectively.

FOREIGN HOLDINGS IN COMPANIES REDUCED

The Government of India have decided that companies with foreign holdings exceeding 75 per cent should raise 40 per cent of the estimated cost of expansion to Indians only by issue of additional equity inclusive of premium if any. The corresponding proporations for companies with foreign holdings exceeding between 60 per cent and 75 per cent and those with foreign holdings between 51 and 60 per cent would be 33-1/2 per cent and 25 per cent respectively.

The question of formulating a workable relationship between the size of any expansion allowed to a foreign majority company and the extent of dilution in its foreign holdings to be stipulated as a condition thereof, has been examined in detail before the above decision has been taken. The companies concerned would be given a reasonable time for fulfilling the above conditions. They would settle with the Controller of Capital Issue the total amount to be raised, its break up into the face value of the issue and the premium to be charged thereon and the timing of the issue.

POWER DISTRIBUTION NETWORK RISES FIFTY-FOLD

India's vast network transmission and distribution system for carrying power from generating centres to various consumer points, is over 1 million kms. and represents a fifty-fold increase since Independence. The total length of transmission lines in 1947 was only 22,664 km, which rose gradually to 976,059 kms in 1970.

The lines constructed up to the end of the First Plan period were of a load-carrying capacity of 110 kV and below. In order to cope up with demands for transmission at higher voltage, construction of 220 kV lines was taken up during the second Plan period and today transmission lines of this capacity extend over a length of 11,000 kms in the country. The construction of 400 kV lines was taken up in the Fourth Plan period and is in prograss for linking the Dehar (660 MW) power station of the Beas Complex with Panipat in Haryana, and Obra Thermal Station (1,000 MW) near Varanasi with Sultanpur both in U. P.

The Ministry of Irrigation and Power has estimated that for coping with the additional power generation likely to be available during the Fourth Plan, a total 22,430 kms of additional transmission lines have to be constructed. Of these lines lines, 11,400 kms will be of 110 kV and 132 kV; 10,500 kms of 220 kV; and 530 kms of 400 kV. The additional thermal capacity expected to be available before the end of the Fourth Plan is 300 MW from Badarpur, 100 MW from Bhatinda and 200 MW from Ranapratapsagar (nuclear). All these three stations will be operated in integration with Bhakra system.

For meeting the requirements of transmitting the additional 17.7 MW of power proposed for generation during the half decade 1972-77, the Ministry has estimated that it would be necessary to add a further 20,400 kms of circuit lines-8700 kms of 110/132 kV, 8100 kms of 220 kV and 3600 kms of 400 kV. Of these, 10 lines will be of 400 kV - four in the Western Region and six in the Eastern region.

SALIENT FEATURES OF ART SILK INDUSTRY

The installed capacity of rayon staple fibre is of the order of 64 million kg. and the target capacity by the end of the Fourth Five-Year Plan has been placed at 90 million kg. The capacity licensed in this industry is 26 million kg. In the light filament yarn sector, the capacity installed is presently 35.5 million kg. while the licensed capacity is 40.5 million kg., the target capacity in Fourth Plan has been tentatively fixed at 64 million kg.

In respect of acetate rayon filament yarn, the present installed capacity is 5.4 million kg. while the target capacity by Fourth Plan end is 9 million kg. For nylon filament yarn/fibre, the capacity installed is 9 million kg. Licensed capacity including the letters of intent given recently is 17.1 million kg. The Fourth Plan target for this line of production has been placed at 19 million kg.

As for polyester filament/fibre, the total licensed capacity is of the order of 24.4 million kg., but the installed capacity is only 5 million kg. and the target capacity in Fourth Plan is 12 million kg. Acrylic fibre is another sector where production capacity is sought to be established. Although about 4 million kg. worth of capacity has already been licensed for this fibre no capacity has been so for installed. Howevar, the Fourth Plan target is to establish a capacity of 12 million kg. according to the Office of Textile Commissioner, Bombay.

The art silk weaving industry in India is by and large spread over in the de-centralised sector which comprises about 103,000 powerlooms and 150,000 handlooms installed. In addition there are about 630 warp/rasched/lace lines. Besides, the Fourth Plan envisages the installation of 40,000 power looms for producing art silk and synthetic fabrics. The State Governments in the country have been authorised to make looms in this respect.

During the 10 month period January to October 1971 the export performanee of rayon and synthetic fibres and allied manufactures totalled Rs. 81.75 million as against 49.24 million for the same period during 1970. Export of fabrics, hosiery and rayon, tyre yarn/cord, have particularly improved. In respect of fabrics for instance, the export growth was from Rs. 36 million to Rs. 60.7 million in the corresponding periods, while hosiery and knitwear improved from a negligible value to Rs. 164 million and rayon tyre yarn/cord rose from Rs. 4.93 million to Rs. 13.66 million.

ADDITIONAL CAPACITY FOR TUFTED WOOLLENS

Recently additional capacity has been sanctioned by the Government to the Woollen tufted sector by issuing a letter of intent to one unit and an industrial licence to another.

Presently there are about 665,000 unauthorised worsted spindles in the country which are under regularisation. In addition, expansion of woollen power looms has been granted to some of the states like U. P. (288 power looms), Haryana, (144 power looms), Madhya Pradesh (96 power looms), and Bihar (48 power looms).

During 1971, 16 letters of intent have been granted by Government to different units for expansion in the woollen combing sector for manufacture of 19.50 million lbs of wool tops per annum in addition to enisting capacity. It has also been decided to allow installation of six units with 600 shoddy spindles spread over in the backward areas of six states.

PROPELLENT FUEL COMPLEX TO BE SET UP

The propellent fuel complex which is being set up as a new establishment of the Indian Space Research Organisation at Thumba is expected to go into production by the middle of 1973. With this, India will enter a new era of self-reliance in respect of basic fuel requirements of higher energy for rockets and space vehicles by that time.

The fuel complex is to produce large variety of polymeric fuel binders like polysulffides, polyurethanes, plasticiser catalysts and stabilisers that were hitherto imported and were in short supply.

The complex is to employ completely indigenous designs for its various reactors and production units.

SHIP REPAIR INDUSTRY
A SKETCH

Ship repairing is an important industrial activity in India. The industry covers items like tugs, barges, fishing trawlers, dredgers, and so on. Presently there are about a dozen ship yards in the organized sector producing boats and crafts with an installed capacity of 15000 tonnes per annum. It also includes their ship repairing activity. The production value of these yards during 1970 was of the order of Rs. 110 million.

To tide over the temporary shortage of indigenous steel required by the industry, some imports are being allowed. At the same time the industry is endeavouring toward maximum indigenisation of the components required. These components require special finish and inspection to suit the rigorous duty required in the industry.

INDIAN FILMS
SOME FACTS

Next to Japan, India is the second largest film producer in the world. The film industry is one of the foremost in the country with an estimated investment of Rs. 1,500 million in studios, laboratories and cinema houses. The size of the industry can be visualised by the fact that about 65 studios, 38 laboratories, over a thousand producers, 1,500 distribution concerns and nearly 150 thousand workforce are engaged in the line. There are 7300 cinema houses with gross box-office collection of Rs. 1600 million per annum. In the last five years on an average 366 feature films were produced per annum in 12 Indian languages. The highest number of about 400 films was produced in 1971.

Recent years have witnessed visible strides in innovation and improvement in production techniques in India. A new class of talent is emerging in production, direction, histrionics, music, dance, photography, screen-play writing and other connected fields. The impact of these films is not restricted by language barriers as is evident by their winning awards in international film festivals. Nearly 100 countries import Indian films.

In technical aspect of production, Indian, films have improved remarkably and can well compare themselves with those produced in advanced nations including America. They had secured laurels in World Fetes due to their distinction, variety of thematic coverage and presentation. While westren countries have developed and diversified film production specialising in different aspects such as music, comedy, gorgeous settings, classics, education, cartoons and so on, India too has tried them. But the diversity of her audience has tended the producers to cater to different sections of people and necessitated them to mix up different arts in a single film. Varied emphasis is thus laid on diverse arts like dance, music, setting and comedy in one and the same picture.

Film Infra-structure

Indian Film Industry has come to stay in India and has the largest and well laid out studios in the whole of the Far East with latest technical equipment such as cranes, back projection equipment, optical printers, sub-titling equipment and so on. India manufactures its raw film in sound and positive in black and white.

It is a well-know fact that there is no better medium than the Cinema to spread the message of international brotherhood among the comity of nations. The Cinama has proved beyond doubt that the 'world is one family'' which has been happily and significantly adopted as the motto of India's International Film Festivals.

With the increase in the number of International Film Festivals throughtout the world, the Cinemas of various countries have been brought nearer to the common man in all parts of the globe. Indian films, both features and documentaries, are today participating in every film festival abroad. This has helped the overseas audience to get to know the various aspects of the Indian Cinema. The prize-winning Indian films have brought prestige to the country as a whole and to the film industry in particular.

Many Indian feature films like *Neecha Nagar, Babla, Pathar Pancholi, Jagte Raho, Aparajito, Do Ankhen Barah Hath, Apur Sansar, Two Daughters and Bhuvan Shome* and shorts such as *Symphony of Life, Khajuraho, Wonder of Work, Radha and Krishna, Taj Mahal, India 67, Chaos and Life* have secured international awards.

Besides feature films, children's films and documentary films are produced in large numbers.

With the exception of the countries with television networks, India is perhaps the world's largest documentary film producing country. The programme started out, modestly in the 1940s. After independence, the Government established a full-fledged Division as the apex organisation for the production of documentary films and News Reviews in the country. In the two decades, since then, there has been a steady stream of films out of the Films Division's headquarters in Bombay. Each year some 200 films including weekly news reviews are made by the Division. The subjects cover all aspects of Indian life and activity – agriculture, industry, science, education, culture, current affairs etc. The techniques touch a wide spectrum of presentation – the narrative film, the interview, the animated cartoon, hidden camera, feature-type, and occasionally feature length films – both in colour and black and white.

In addition to its own efforts the Films Division also gets films done through several free-lance film-makers. And with the years, state governments, public and private sector undertakings and independent sponsors have been increasingly patronising the documentary film as a tool to publicise several areas of endeavour.

As a further fillip to the industry a chain of organisations like the Film Institute of India, Poona and the Institute of Films Technology, Madras have been established where technical training is imparted.

The aim of the Poona Institute is to provide proper training for film technicians, the basic groundwork, after having mastered which, the young graduate can, branch off into any department of film–making.

The Institute offers courses in direction, screenplay writing, motion picture photography, sound recording and sound engineering, film editing and film acting. It has won international recognition and has been chosen to conduct UNESCO courses. Besides students from the country, foreign students too find it a valuable training ground. The UNESCO sponsored script writing training courses attracted professionals from other countries. The Institute will also be starting TV training courses.

International demand for Indian films is on an uptrend in recent years. From Rs. 36 million in 1968-69 export went up to Rs. 43.5 million in 1969-70 and further rose to Rs. 58.6 million in 1970-71. In the current year (1971-72) between April and August 1971, films worth Rs. 23.55 million have been supplied to foreign markets.

In 1970-71, eighty countries imported feature films from India during 1970-71 at a cost of Rs. 53.2 million. U.K. was the most prominent purchaser at a value of Rs. 19 million followed by Singapore (Rs. 4 million), Kenya (Rs. 3.2 million), Ceylon (Rs. 2.6 million), Dubai (Rs. 2.5 million), Thailand (Rs. 1.8 million), Indonesia (Rs. 1.8 million), Bahrain Islands (Rs. 1.7 million), Fiji Islands (Rs. 1.4 million), Iran (Rs. 1.4 million), Mauritius (Rs. 1.3 million), Qatar (Rs. 1.4 million) and Nigeria (Rs. 1.2 million).

Eighty–four countries imported small or big quantities of cine films developed with sound track at a value of Rs. 3.8 million (nearly one million metres). The major buyer, however, was the U.K. having absorbed these films worth Rs. 1.2 million.

Export of advertising shots and news reels was of the order of Rs. 1.6 million in the year. Japan, Qatar, Lebanon and U.K. were the principal buyers.

A number of export agreements have been entered into in recent times by the Indian Motion Pictures Export Corporation, Bombay, an organisation engaged in the film export trade. One such agreement was with Sovexport film for supply of 5 Indian movies at a cost of Rs. 2.06 million. Another one was for showing ten Indian films on Finnish T.V. The earning is about Rs. 97,500. The Film Distribution Organisation of Algeria has also purchased 16 films from India through IMPEC at a cost of Rs. 258,000. The Algerian Organisation has agreed to purchase 30 more films during the current year. In the Libyan market too, an arrangement has been made for regular import of Indian feature films Another country which has recently purchased films from India is Burma. Thirteen films were sold to that country by IMPEC.

The non-traditional Latin American markets too has been covered by an export deal with a Lima film agency. Royalty rights of 15 Indian feature films have been sold for distribution in Peru, Ecuador and Bolivia. The foreign exchange earning by this deal is equivalent to Rs. 1.24 million.

SCIENTIFIC RESEARCH AND PRODUCT DEVELOPMENT

MANUFACTURE OF VOLTAGE REGULATOR

For the first time in India, VM 21 Voltage Regulator required for Hydro Generators has been successfully manufactured by M/s. Heavy Electricals (India) Ltd., Bhopal.

With this manufacture, the dependence of the country on imports of the product has been eliminated resulting in a foreign exchange saving to the tune of about 200,000 for each unit.

The First Voltage Regulator manufactured is for Chibro Hydro Electric Project in Uttar Pradesh for the Hydro Generating sets which are also being supplied by the Bhopal factory. In addition to VM 21 Voltage Regulator, the Electronics Division of the Bhopal factory have indigenously manufactured and supplied Voltage Regulators for 1500 DC EMU Stock and Fuse Monitoring Units for Rectifier Banks which were earlier being imported.

IMPORT SUBSTITUTION IN EARTH MOVING EQUIPMENT

About 12000 items of spare parts and earth moving and construction equipment which were being imported earlier are now being manufactured in India. The indigenous manufacture has resulted in an annual saving of Rs. 30 million in foreign exchange.

The value of earth moving and construction equipment in India is about Rs. 3600 million. About 60 per cent of this equipment is used for irrigation and power projects and the spare parts required for these involved an average foreign exchange expenditure of about Rs. 18 million per annum.

The Central Water and Power Commission of the Ministry of Irrigation and Power and the Directorate General of Technical Development of the Ministry of Industrial Development are extending technical assistance to many of the established importers of earth moving equipment and encouraging them to take up indigenous production thereof as part of Government's drive for import substitution.

CAN LINING COMPOSITION

The National Chemical Laboratory, Poona, has developed know-how for the manufacture of can lining composition based on nitrile rubber latex. These lining compositions are imported at present. Lining materials based on synthetic latex have better properties of adhesion, storage stability and film formation as compared to compositions based on natural rubber latex. Synthetic rubber based can lining composition is chiefly used in metal cans suitable for storing mineral oil, greases, food and the like. The NCL product has been tested by an user organisations and found to be satisfactory.

ENGINEERING INDUSTRIES

GROWTH AND POTENTIAL

Among the many significant development in India during the last decade, the growth of engineering industries stands prominent. The index of industrial production for engineering industries (registered with Directorate General of Technical Development) which was 112.5 during 1961 rose to 269.5 during 1970 (Base 1960/100).

In the Mechanical Engineering Industries group production of Machine Tools improved from Rs. 70 million in 1960-61 to Rs. 290 million in 1970; Sugar Mill Machinery from Rs. 44 million to Rs. 145.6 million; Cement Machinery from Rs. 6 million to Rs. 84 million; Commercial Vehicles from 28,400 nos. to 40,600 nos; Power Driven Pumps from 109,000 nos. to 27,865,000 nos. Stationary Diesel Engines from 44,700 nos. to 68,100 nos. & Bicycles from 1,071,000 nos. to 2,094,000 nos. In the Electrical Engineering Industries group Power Transformers improved from 1.41 million KVA in 1960-61 to 9.00 million KVA in 1970; Electric Motors from 728,000 HP to 2,870,000 HP; Electric Fans from 1.06 million nos. to 1.57 million nos. in 1970 and Radio Receivers from 282,000 nos. to 1,770,000 nos. in 1970.

The Heavy Electrical Projects at Bhopal, Hardwar, Tiruchirapalli and Hyderabad, along with the capacity in the private section, can today meet the bulk of the requirements of capital equipment for power generation, transmission and distribution. Locomotives, wagons, trucks, motor cars, ships and aeroplanes are now being manufactured in the country. Industrial equipment ranging from those required for textiles, cement and other traditional industries to those for steel and fertilizers are mostly available from indigenous sources. Agricultural tractors and implements, a variety of pesticide equipment are produced in the country in addition to communication aids such as teleprinters, TV Sets and other electronic instruments.

A host of new items are added every year to the production list. During 1970 the new items manufactured for the first time in the country included vertical spindle surface grinder, crankshaft grinder, passenger lifts of 500 ft/mt. capacity, solenoid valve, exploders for use in mines, precision alloy castings, phosphorbronze wire and tombac wire, stackers/reclaimers/shiploaders, glass lined equipment up to 3000 litres capacity, metallic aluminium caps, lime calcinating furnace, spray dryers for milk etc. automatic bottle fillers for dairy industry, calender machine for rubber and plastic, self-indicating counter scales, semi-self indicating counter scales, transportable platform scales, baggage weighers, steel yard portable weighers, railway tippler weighbridge, overhead weigher, crane weighers up to 0.5 tonnes capacity, green leaf tobacco thrashing plant, calliper brakes for bicycles, combine harvestor, power harrows, fertilizer distributors, high carbon steel discs etc.

In the same year the new range of products produced for the first time covers production of new sizes cylindrical and tapered roller bearing such as LO 64, ABC–1054, DG–PR/180, 30,207, CK–567A/K–563, CK–408,33 9/K–572 and CK–21075/K–21212, Needle Bushes, Industrial Roller Chain of sizes upto 2½" pitch including American Standard Speen and conveyer chain up to 15" pitch, Bagasse Carrier chains and Cave Carrier Chains, Bottle Carrier Chains, Stainless Steel Flanges and Alloy Steel Flanges to sizes up to 1000 mm dia, resilient couplings, rubber mixing mills sizes 600 x 1800 mm, rubber refiner mills sizes 535 x 610 x 915 mm, automatic electro-plating plants, automatic vacuum coating and impregnating plants, self cleaning continuous centrifuge and circular charts and roll charts.

Thus, during the Sixties, despite various vicissitudes – two wars and industrial recession – thanks to the recovery and significant growth of the engineering industries, the Indian economy witnessed a great transformation in its industrial structure. Industrial production more than doubled and the country not only became self-sufficient in a wide range of consumer goods but could also increasingly rely on the availability of producer and capital goods from indigenous sources.

Along with the general industrial growth, there has also been a steady spread of the technological base, infra-structural facilities and development of adequate skilled manpower which can help accelerate the pace of industrial expansion in future.

Thus the engineering units are continuously expanding and more and more units are being set up to take up the manufacture of new and more sophisticated items of a broader range. It is heartening that these units have also been incorporating the latest technological developments and know-how and have virtually reached a stage where exports are mounting by leaps and bounds. The value of the engineering product exports during 1970-71 was of the order of Rs. 1152 million as compared to Rs. 1064 million in 1969-70, Rs. 850 million in 1968-69 and Rs. 415 million in 1967-68. The target fixed for 1971-72 is Rs. 1650 million and the performance during the first half of 1971-72 (April-Sept. 1971) amounted to Rs. 640 million as against Rs. 500 million during the corresponding period of the previous year, thereby recording a growth rate of 28 per cent.

A significant feature of this increase is that in addition to simple manufactures, which were being exported in the past, the exports today include capital equipment, structural fabrications, power station equipment, transport equipment and durable consumer goods. The direction of the exports has also changed considerably not only to the developing countries but to the developed countries as well.

India is today fully equipped to undertake projects in the world markets particularly in the field of sugar machinery, textile machinery and cement machinery right from initial surveys and feasibility studies to the commissioning of plants.

Recent trends indicate that there are prospects for further increase in production of engineering goods and their exports. In 1970-71, though the production of textiles, steel and basic materials dropped and transport equipment fell by 3.9 per cent mainly because of a fall in the output of motor cycles and bicycles, electrical machinery industry improved by 13.6 per cent, non-electrical machinery by 9.8 per cent and metal products by 8.3 per cent.

The new industrial licensing policy of the Government aimed at ensuring greater freedom and opportunity for entrepreneurs and the newer industrialists, has shown positive results. Recent trends in applications for industrial licences indicate a buoyancy in terms of investment interest. The licensing during the period April to August 1971 was 21 per cent higher than during the corresponding period of the previous year. Industrial licensing too has been stepped up to meet the problem of capacity constraints and during the same period in 1971 the number of industrial licences and letters of intent issued have been 231 and 452 respectively, as compared to 150 and 256 during the same period in 1970.

India's Industrial Policy envisages the continuance of a mixed pattern of industrial development, where the public and private sectors are complementary and not mutually exclusive, except in the very limited field of strategic industries. In fact, it is Government's declared policy not to discriminate between units in the public and the private sectors. Public sector units come under same laws and regulation and pay the same texes as private units. And, realising that the contribution made by foreign capital and technology in the industrial development has been insignificant. Government continue to allow and in certain cases welcome foreign collaboration in Indian industry.

In order to assist the engineering industry in achieving the export target, Government have decided to import Rs. 2000 million worth of steel alone, apart from adequate quantities of aluminium, zinc and other metals. The annual output of steel ingots and finished steel has also gone up to about 6.5 million tonnes and 4.07 million tonnes respectively. The country now fabricates annually 19,000 tonnes of metallurgical and other heavy equipment and 9000 tonnes of coal and other mining machinery including drilling equipment, and machine tools production is worth more than Rs. 600 million a year.

India has now attained a stage of industrial production where it can enter the vast field of economic co-operation. Of late, many industrial houses have become interested in industrial collaboration in other parts of the world and have been coming up in greater numbers with proposals to collaborate in joint ventures abroad. The Indian engineering industries are in a position to share their resources, technical know-how, consultancy services, machinery and equipment with other countries. In fact, a large number of the enterprises are now equipped to render consultancy services in many engineering fields demanding complicated know-how sophisticated plants and equipment, indigenous design and engineering. India's consultancy services have also been aiding the engineering industry to attain self-sufficiency not only in designing engineering projects, but also in indigenous manufactures of various auxiliary equipment which were used to be imported. The country has already won substantial industrial contracts in which her consultancy talent utilised so far has been much appreciated. Some examples are – setting up of three cement plants in Syria, one newsprint mill in the same country and general industrial development work in Iran by National Industrial Development Corporation of India.

Some of the turn-key projects, entrusted to the Indian firms, which invariably include consultancy services, are (i) construction of power transmission lines in Kuwait, Nigeria and Sudan, (ii) complete sugar mill in Uganda, and (iii) textile mills in UAR. Indian consultancy services have now been recognised in overseas markets as competent to offer consultancy services in the following specialised fields :

Thermal Power Plants, Nuclear Power Plants, Hydroelectric Power Plants, Electrical Transmission and Distribution System, Iron & Steel Plants, Fertilizer Plants, Cement Plants, Pulp and Paper Plants, Water Works, Ports, Harbours, Warehouses, Dams, Bridges, Roads & Buildings, Architecture & Town Planning. Mining and Mine Benification Plant, Material Handling Plant, Non-ferrous Metallurgical Plant, Refinery & Petroleum Plants and Light & Heavy Engineering Projects.

Indian economy possesses comparative cost advantages in labour intensive lines of production. Industrial economies of the world can appreciate this aspect and vacate increasing areas of less complicated and labour-intensive lines and production in her favour and shift over to manufacture on capital-intensive lines. ☐

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ENGINEERING PRODUCTS AND EXPORT EFFORT

The growth rate of engineering product exports from India in recent years is a sure indication of the subtained effort made by an ever strengthening chain of individual manufacturing units. Many new markets and many products are being continuously added to the export stream year after year. That these products continue to stand rigorous tests of exacting product specifications and price and quality considerations imposed by consumers abroad even in competitive markets of sophisticated countries, reflect the pains taken by each exporter before the supplies are effected.

Compared to the total export earning of Rs. 1064 million in 1969-70, engineering industry raised its contribution to the country's foreign exchange earnings to Rs. 1166 million in the following year. During 1971-72 the same uptrend is maintained and the certain expectation of the engineering industry is that their export success would set still another record for this year.

Among the several prominent engineering product exporters, M/s. Cooper Engineering Limited, 658, J. M. Road, Poona-4, have accomplished success in the export trade of looms, diesel engines, machine tools and other engineering products. Exports of the company during July 1970-June 1971 amounted to nearly Rs. 2.6 million. Their looms were exported to Indonesia and Nigeria, mechanite castings to the U.K., diesel engines to the West Asian markets and Philippines and machine tools to Ceylon and Japan. Diesel engines constitute an important segment of the company's export trade.

India's total exports of diesel engines and parts and pump sets reveal a story of continuous export uptrend. These exports which were Rs. 24.69 million in 1969-70 rose to Rs. 26.80 million in 1970-71. In all, there are 27 manufacturing units engaged in the production of stationary diesel engines with a combined capacity of 155,000 numbers (1970); their actual production was 68,114 numbers in that year. Two units manufacture vehicular type of diesel engines and their installed capacity is of the order of 9000 numbers per annum while production in 1970 was 3300 numbers.

Machine tools constitute another area of export dynamism of the Poona firm. India's total installed capacity for machine tools and machine tool accessories was of the value of Rs. 614 million as in 1970. The country's machine tool production alone worked out to Rs. 290 million in that year (11,766 numbers). This is an area where the governmental undertakings and private enterprises complement each other's endeavour to promote production, product range and export sales. And the firm is a prominent private manufacturer in the sector.

In the year under review the company's sales of diesel engines and spares (both internal and external) would have been higher but for some recessionary pockets in the internal market. Demand for their looms which was dormant for the past several years began picking up from the preceding year and increased further during the year reviewed. In all, the company's total sales of looms and spares registered a sharp rise of 160 per cent. Their sales in respect of machine tools and spares too were higher by 8 per cent, as compared to the preceding year.

EXPORT TREND OF DETONATORS

India's detonators industry has already made a mark in international trade. The export value of detonators and parts stood at Rs. 735,830 in 1970-71, which perhaps was the first year when substantial supplies were made in this line. Singapore, Thailand, Philippines and Hongkong were the importers for these products.

With two manufacturing units engaged in the production of detonators, the country's installed capacity as in 1970 was of the order of 168 million numbers while actual production was 103 million numbers valued at Rs. 44.2 million. One unit is engaged in the production of detonating fuses. Its annual capacity was 9 million metres (1970) and production 7.34 million metres valued at Rs. 5.86 million. Additionally, there is capacity for producing 28,560 tonnes of blasting explosives, 12.8 million coils of safety fuses and 2000 tonnes of L.O.X. explosives. The actual output in these areas in 1970 respectively was 23,370 tonnes, 9 million coils and 1,680 tonnes. The country's production of raw materials required for the industrial explosives and ancillary products, namely PETN, styphine acid and sodium has been sufficiently established.

M/s. Indian Detonators Limited, Hyderabad have succeded in improving their export sales at least sixfold during July 1970 and June 1971 as compared to the previous corresponding year. The export sales rose to Rs. 1.8 million from Rs. 0.3 million.

The firm has plants at Hyderabad and Rourkela. Their production of ordinary and electrical detonators, detonating and safety fuses and PETN (raw material) at the Hyderabad plant has improved in the year reviewed. Their Explosives Plant at Rourkela, manufacturing slurry type of explosives since December 1970, has developed through continuous research, new products suitable for use in underground coal mines.

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AUTO TEMPOS AND EXPORT TRADE

Road motor vehicles contribute substantially to India's export earnings. In 1970-71, their export value was of the order of Rs. 209 million as compared to Rs. 111 million in the preceding year. A wide variety of vehicles is supplied to countries far and near and these include jeeps and land rover type vehicles, lorries, trucks, chassis with engines mounted and motor vehicle replacement parts, motorised cycles etc.

There are six units (1970) for manufacturing trucks and buses with an annual capacity of 58,000 numbers and one unit for manufacturing tempos (three and four wheelers) with an installed annual capacity of 2004 numbers. In 1970, actual output of trucks and buses respectively was 27,460 numbers and 9580 numbers. Production of tempos in the year was 3500 numbers. The annual capacity for jeeps was 10,000 numbers and actual output 9335 numbers. The production of cars in 1970 was 35,830 numbers. As for motorcycles and scooters, the total installed capacity was 160,000 numbers per annum, while actual output of motorcycles in 1970 was 42,970 numbers, three-wheelers 4300 numbers, scooters 58,392 numbers and mopeds and scooterettes 11,690 numbers; the production of commercial vehicles in 1970 increased by 16 per cent over that of 1969; jeeps by 20 per cent, cars by 2 per cent, motor cycles by 22 per cent, scooters by 20 per cent, and mopeds and scooterettes by 6 per cent. The production of three wheelers in that year would have been higher but for increased output of scooters.

The firm engaged in the manufacture of tempos and diesel engines M/s. Bajaj Tempo Chinchwad, Poona exported naerly Rs. 1 million worth during the year ended September 1971. The demand for the company's vehicles has been increasing. The Research and Development Division of the firm developed during the year its matador chassis and supplied it to M/s. Air India for its jumboo jet services for their special requirements of baggage conveyor and high lift platform trucks. The company has plans for expanding its manufacturing capacity to 12,000 vehicles per year and 6,000 diesel engines for other uses.

In 1970-71, automobile tempos were supplied by India to Arab Republic of Egypt and Syria. In the earlier year they were exported to Federal Republic of Germany.

EXPORT EFFORT OF BHILAI STEEL PLANT

The Steel Plant at Bhilai is making a good headway in export markets. The plant has been receiving contracts for overseas supply of rails from several markets. A contract for the export of 41,000 tonnes of Bhilai rails valued at Rs. 56 million has been secured in May 1970 from South Korea. Orders for the rails were also received from Argentina and Arab Republic of Egypt.

The Bhilai Steel plant started exports in 1959-60 when it despatched pig iron to Japan. This steel enterprise which is the biggest so far in India has to its credit the success of having despatched its products to more than thirtyseven countries including the U. S. A., U. S. S. R. the U. K., Japan, Sudan, Ceylon, Arab Republic of Egypt, Ghana, Iran, Iraq, Nigeria, Kenya and Malaysia.

Exports from Bhilai which were only Rs. 5.5 million in 1959-60 rose to a level of Rs. 345 million in 1969-70. During the decade, the total value of Bhilai exports were nearly Rs. 1150 million. The pig iron exports up to 1969-70 were of a quantity of 1.44 million tonnes and those of saleable steel 1.16 million tonnes.

The Bhilai steel plant has an important feature in that it lays emphasis on progressive reduction in foreign exchange component it its manufacturing activity. The foreign exchange component was 48 per cent in its initial stage of production at one million tonnes. It was reduced to 42 per cent in the next stage of expansion to the level of 2.5 million tonnes. It is 30 per cent for the present expansion (3.2 million tonnes).

Bhilai is the only plant which is self-sufficient in beneficiated fluorspar–an item that is usually imported. The plant is built on a high technical level with due regard to the latest achivements in metallurgy and maximum mechanisation and automation have been carried out. Besides being self-sufficient in allied shops, such as the mechnical and smelting shop, the Bhilai Steel Plant has chemical plants for processing industrial gases, which are generated in the coke oven batteries as bye-products of coke. The chemical plant, include an ammonium sulphate plant, a sulphuric acid plant and plants for other chemicals like benzol, tar, dye-stuffs, lacquer etc.

EXPORT ORDER FROM SOUTH KOREA

The Minerals and Metals Trading Corporation has recently secured an export order from South Korea for supply of Rs. 80 million worth of iron ore and manganese ore.

The ores are to be supplied to the Korean Steal Mill, now under construction and expected to be completed by July 1973.

A total quantity of 630,000 tonnes of iron ore would move from Paradeep and Haldia Ports. The supplies are to be completed by five years beginning form April next year.

OSSEIN TO JAPAN

Ossein, a byproduct in the process of edible and pharmaceutical gelatine production has been recently supplied to Japan by an Indian firm. The quantity supplied was 75 tonnes. The Indian firm who have effected the supplies are M/s. Shaw Leiner Co., a subsidiary of M/s. Shaw Wallace & Co. Ltd. 4, Bankshall Street, Post Box No. 70, Calcutta-1. The firm has also bagged some trial orders for gelatine.

Gelatine capsules, gelatine and derivatives, edible gelatine and hardened gelatine are already being exported by India to countries like Ceylon, Kenya, Tunisia and Hongkong.

PUNJAB FIRM EXPORTS HANDICRAFTS

Among the handicraft exporters who have recently received National Awards for their export successes, M/s. Hansa Agencies, Jullundur have introduced a number of new products in hitherto less known crafts in the export stream particularly in the U. S. market.

The rate of their export growth over the years makes an interesting study. In 1969-70, their total exports of a variety of handicrafts were Rs. 4.6 million. Their export business rose further to Rs. 5.68 million in 1970-71. Of these, their export of miscellaneous handicrafts were Rs. 0.73 million in 1970-71.

EXPORT PERFORMANCE AND POTENTIAL

BRIGHT EXPORT PROSPECTS FOR 1972-73

Bright export prospects are visualised in 1972-73 in view of the expectation of sufficient raw jute availability, a good cotton crop, and higher production of steel.

Except in the first year of the Fourth Plan (1969-70) when the growth rate of exports was only 4.1 per cent, the performancee during the following two years has been exceedingly good despite difficulties. It is expected that exports at the end of the current financial year (1971-72) would be about Rs. 16200 million compared to the export figure of Rs. 14133 million in 1969-70. There would thus be an increase of 14 per cent in the growth rate. This would mean that the overall increase in exports in the three years of the plan would be 6 per cent by the end of 1971-72. It is also expected that exports in the remaining two years of the plan would be far higher and the plan target of 7 per cent export growth would be achieved.

The export performance would have been better but for certain difficulties. There have been lesser exports of iron ore during 1971-72 because of a cut down in steel production all over the world, particularly in Japan. Also there has been shortage of steel that affected the exports of engineering products. Similarly shortage of cotton led to lesser yarn supplies which in turn affected exports of cotton textiles. Industrial output has not improved in certain sectors with the result that there have been lesser surpluses for export. The Indo-Pak War created transport bottlenecks and shippers had to put up with increased freight rates. Besides, there was the international monetary crisis which resulted in the reluctance of overseas importers to enter into long term contracts. A 4.5 per cent fluctuation in foreign exchange rates was yet another limitation.

EXPORT PERFORMANCE OF GROUND NUT EXTRACTIONS

Exports of ground nut extractions reached a record level of 861,000 tonnes during 1971 from 762,000 tonnes in 1970.

The exports have been canalised through Groundnut Extractions Export Development Association (GEEDA), Bombay, effective from February, 1969. The Association succeeded in developing a new market for the extractions in Japan. From less than 20,000 tonnes exported to that country before the Association was formed, the quantity improved to 122,000 tonnes in 1970 and 134,000 tonnes in 1971. They have plans to step up the exports to Japan further to a level of 250,000 to 300,000 tonnes per annum.

Exports to the United Kindom were stepped up from 74,000 tonnes in 1968 to 170,000 tonnes in 1969. In the following two years, however, they suffered a set back-134,000 tonnes in 1970 and 87,000 tonnes in 1971.

The setback was mainly due to the frequent freight hikes during 1971 by the Karmahom Shipping Conference, according to the Association.

In 1970-71, the solvent extracted (defatted variety) of groundnut oil cake and meal was exported to the tune of Rs. 453.62 million (674,580 tonnes). Poland was the major importer for a value of Rs. 78.70 million. Japan was the next important market at an intake of Rs. 76.10 million. U. K.'s imports amounted to Rs. 62.60 million, German Democratic Republic Rs. 55.97 million, Czechoslovakia Rs. 47.45 million, U. S. S. R. Rs. 43.58 million, Yugoslavia Rs. 38.49 million, Hungary Rs. 29.15 million, and Bulgaria Rs. 15.32 million.

EXPORT GROWTH IN ELECTRICAL APPARATUS

In the current fininacial year the export performance of electrical machinery, apparatus and appliances has registered notable increase. Compared to the first five months of 1970-71 (April-August, 1970), the same period in the current year recorded a Rs. 33 million export growth—from Rs. 52.72 million to Rs. 85.47 million.

All categories of electrical machinery have shared this uptrend. Electrical power machinery and switchgears improved from Rs. 12.83 million to Rs. 21.12 million. Equipment for distributing electricty rose from Rs. 12.91 million to Rs. 23.51 million. Telecommunication apparatus improved from Rs. 9.1 million to Rs. 14.8 million. The export value of domestic electrical equipment had more than doubled from Rs. 4.5 million to Rs. 9.41 million. In respect of other electrical machinery and apparatus too, there was a substantial gain.

In the full year of 1970-71, the export trade in this line was of the order of Rs. 160.8 million as against Rs. 145.5 million in 1969-70.

LEVY ON HANDLOOM EXPORTS TO U.K.

Effective from January 1 this year, the 15 per cent levy announced earlier by the U.K. Government on imports of handloom products from India came into force. With this, Indian shipments of handloom products to the United Kingdoom have run into difficulties. Shipments of handlooms to the U.K. worth Rs. 3 million have been suspended on the instructions received from the importers in that country. Another export order valued at Rs. 5 million scheduled to be exported by India by March 1972 has also been effected by the levy, it is learnt. The British importers seem to have asked for suspension of shipments or in the alternative for a price reduction by 15 per cent.

A total of 9 million square yards of handloom products is annually exported to the U.K. market by India. It is only reasonable that the U.K. Government will revise its decision to impose the 15 per cent levy. Currently the question of exempting handlooms from the levy is being taken up by the Indian Government with the U.K.'s Board of Trade.

In view of the need for diversifying the export market of Indian handlooms a Government-sponsored delegation is currently touring Australia, New Zealand Fiji and Singapore. Exports to Australia have been showing an upward trend. In 1969-70, the total value of exports to that market was Rs. 3 million. In 1970-71 it rose by Rs. 0.8 million and in the first five months of

1970-71 (April-August, 1971), it has already reached Rs. 2.1 million. During the full year of 1971-72 exports worth a minimum of Rs. 3 million are expected to be supplied to the Australian market. A similar trend has been in evidence in the case of New Zealand also. It is felt that in Fiji there would be good potential, in view of the fact that a good share of the population is of Indian origin there. Further efforts to diversify handloom exports are also underway in African markets like Nigeria.

HANDLOOM PRODUCT EXPORTS
A REVIEW

In the first three quarters of 1971-72 (April-December 1971), total exports of handloom goods amounted to Rs. 156.66 million. Of this, cotton handloom fabrics of standard type including bleeding Madras, Real Madras handkerchiefs, lunghies and sarongs, dhoties, sarees, and shirtings amounted to Rs. 49.56 million. The export value of cotton handloom non-fabrics including carpets and durries, bedsheets and blankets, pillowcovers and table cloth and towels, and napkins amounted to Rs. 33.50 million. Cotton handloom readymade garments were exported in the period to the tune of Rs. 101.92 million. Silk fabrics including mulberry silk fabrics, and tassar silk fabrics were supplied overseas at a value of Rs. 54.19 million. The handloom woollen fabrics including woollen and worsted fabrics and woollen blankets fetched Rs. 0.42 million.

The export value of handloom goods during April-December, 1970 was of the order of Rs. 199.43 million.

TRADE PROMOTION AMONG DEVELOPING COUNTRIES

India signed recently a Protocol relating to trade negotiations among developing countries. The Protocol was signed by India's Permanent Representative to General Agreement on Tariffs and Trade (GATT).

These negotiations, which started in 1966 at the initiative of India in GATT, were completed in November 1971. Sixteen developing countries from Asia, Africa and Latin America, participated in preparing the mulitlateral Agreement. Other developing countries are also expected to join the Agreement.

The work of the Trade Negotiations Committee and its outcome represents an important initiative in India's trade and commercial policy.

INDIA IN LAUSANNE FAIR AS A GUEST OF HONOUR

India will participate in the Lausanne National Fair to be held in Lausanne (Switzerland) from September 9-24, 1972 as a guest of honour.

The Fair authorities invite two foreign countries, one developed and the other developing, every year as guests of honour and allot prominent pavilions to them.

Indian Government proposes to display a wide range of traditional and non-traditional items of exports at the Fair. The aim of the display will be to demonstrate India's potential to produce a wide variety of goods, which can meet the requirements of the world markets.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

REVIEW OF INDUSTRIAL PRODUCTION

With 1960 as the base year, the General Index of Industrial production rose to 180.8 in 1970, according to the provisional estimates made by the Reserve Bank of India. In 1969, the General Index was 172.5, in 1968 161.1 and in 1967, 151.4.

The production index of basic industries, namely mining and quarrying, heavy inorganic chemicals, cement, basic metals (iron and steel, aluminium manufacturing) and electricity is 221.7 in 1970 as against 212·0 in 1969. The Index for capital goods industries also showed an uptrend from 214.0 in 1969 to 224.6 in the following year. In the capital goods industries are covered prime movers, boilers and steam generating plants, industrial machinery, machinery components and accessories, electrical cables and insulated wires and rail road equipment as also motor vehicles.

In the intermediate goods industries sector, covering cotton spinning, jute manufactures, manufacture of wood and cork except manufacture of furniture, tyres and tubes, synthetic fibres, dyestuff and dyes, petroleum refinery products, structural clay products, fittings, fixtures and fasteners. The production index rose from 154.4 in 1969 to 158.8 in 1970.

As for the consumer goods industries, the index rose from 145.3 to 154.7 in the comparable years. In this group, consumer non-durable goods industries registered growth from 128.3 to 137.6. The group consists flour milling and grinding, sugar factories and refineries, hydrogented oil, tea, cigarettes, cotton weaving, paper and paper products, drugs and pharmaceuticals, soaps and other washing and cleaning compounds, matches, glass and glass products. In the consumer durable goods industries sector also the growth in the production index was encouraging from 239.7 to 249.5. These industries include commercial office and household machines, electrical appliances, communication equipment, bicycles and tricycles.

Among the industries mentioned above, production index rose in all cases excepting iron and steel, basic industries, prime movers, boilers and steam generating plants, industrial machinery, rail road equipment, dyestuff and dyes, cotton weaving, matches and glass and glass products.

In 1971 the growth in the general index has been on further uptrend. In January 1971, it was 183.0, February 182.3, March 184.4, April 188.2, May 181.8, and in June 188.2.

INDIA'S LARGEST POWER GENERATOR

The 120 MW Hydrogen cooled turbogenerator for the Chandrapura power station of the Damodar Valley Corporation has recently passed all tests successfully at the Heavy Electricals, Bhopal. This is the largest generator manufactured in India so far. Two more 30-MW hydrogen-cooled turbogenerators for Parli (Maharashtra) have been manufactured and tested. One aircooled 30-MW has been designed and is in an advanced stage of manufacture. The recent completion of much larger machines of 120-MW rating sets a landmark in the road to self-reliance in power plant manufacture. Eleven more such generators are on order with HEL and they are in various stages of fabrication manufacture.

Because of the transport-size limitations of the generator imposed by some of the rail routes the same factor has also been taken care of while designing. Being hydrogen-cooled, explosion-proof, it has been designed with a box-girder structure. The stator is shipped as a single unit, complete with core and windings.

The turbo-generator is a two-pole cylindrical rotor machine and therefore, runs at the highest synchronous speed of 3000 rpm (for 50 Hz), thus being suitable for direct coupling to the steam turbine, also supplied by HEL. The generator passed all running tests and proved the specified performance and efficiency at the rated pressure of 2 atmospheres (gauge) of hydrogen. A rigorous test schedule, spread over a number of days, had preceded the repeat testing and also included a number of type tests, besides routine tests.

SEARCH FOR STRATEGIC MINERALS

The Geological Survey of India is to intensify its research for strategic minerals like molybdenum, tungsten and graphite so as to reduce country's dependence on foreign sources of supply.

At present India has to import practically all its requirement of ferro-molybdenum. Investigations have shown that recoverable quantities of this mineral are available in the copper deposits of Rakha and uranium mines of Jaduguda both in the Singhbhum district of Bihar. Reserves have also been found in the Karadikuttam area of Madurai district in Tamil Nadu.

The furture searches for this mineral will form part of GSI's integrated programme for evaluation of base metals.

The country's requirement of tungsten is expected to rise to about 1,900 tonnes annually as the capacity for production of special steel is augmented. The known reserves of this metal are said to be insignificant, being confined to only three places-Degana in Nagaur district of Rajasthan, Agargaon in Nagpur district of Maharashtra and Chandapathar in Bankura district of West Bengal.

As these reserves are considered insufficient in relation to the future growth of demand for the metal, GSI has plans to undertake "regional" search in various parts of the Indian peninsula and in the Himalayas.

GSI studies have indicated fairly large deposits of graphite in the Western districts of Orissa, Palamau district of Bihar and certain parts of Andhra, Kerala and Jammu and Kashmir. At present, India imports about 1500 tonnes of graphite annually.

ARVI SATELLITE EARTH STATION

The overseas communication service earth Station at Arvi has recently completed its first year of operation. The construction of the centre as well as the fabrication of sophisticated equipment was done by Indian engineers. Since the commissioning of this earth station the overseas communication facilities have received a boost. The first commercial service started with Australia in February last. Today, the overseas communication service operates voice grade channels and over 85 per cent of all India international telecommunications traffic now flows on the Arvi Satellite system. India is linked with 15 countries by this medium.

The Satellite services are connected through the INTELSAT space segment. INTELSAT is an international telecommunication consortium of 82 countries holding among themselves over 90 per cent of the world's international telecommunications traffic. India now uses approximately one per cent of total capacity used in the INTELSAT system.

The capacity of INTELSAT is utilised on the basis of international multilateral planning. India now has direct access by satellite hop to U.K., Australia, Malaysia, Kenya, Kuwait, Bahrain, and Japan via the Arvi Satellite system. Access to U.S.A. and Canada has been established by extended connection beyond U.K. over the trans-Atlantic cable system. Similarly, direct contact is made with the Federal Republic of Germany, Italy, France and Switzerland by extension of the satellite to U.K. over submarine cable systems to Europe. In the East, terrestrial extensions give access beyond the Satellite hop to Hongkong and Singapore.

PROGRESS OF ELECTRONICS CORPORATION

A wide range of manufacturing activity is in progress at the Electronics Corporation of India Limited (ECIL), Hyderabad. The range includes electronic systems, instruments and components.

On the instrumentation side, the Corporation is engaged in the production of nuclear instruments for application in industry, agricultural research and medicines. The instruments manufactured include oscilloscopes, pulse generators, ultrasonic flaw detectors, scienti-scanners, medical spectrometers, etc. some of which were being imported till recently by India. The Corporation has designed and manufactured products of great diversity and exacting specifications for the Rajasthan Atomic Power Project. These include control panels, relay and solid state logic equipment, control equipment and process surveillance equipment.

India's first computer TDC-12, which is a real time computer, designed and fabricated entirely by the corporation's scientists and engineers using indigenous technology, finds important applications in education, industry as well as nuclear research.

In the field of communications, the Corporation is working on microwave system, units and components. Their production will be important in the various earth stations being set up for reception. The Corporation is entrusted with the ground equipment project for satellite Instructional TV Experiment being conducted for the first time in the world. The project deploys approximately 5000 special TV receivers made by the Corporation.

The defence components produced by the Corporation as typified by its tantalum capacitors, high grade resistors and synchors are widely used in the country. In the semi-conductors field, components like zener diodes, power transistors, rectifiers and detectors made by the Corporation are in great demand. They have already undertaken the work of growing single crystals of germanium and silicon. All the components made by the Corporation find use in precision instruments like computers, defence equipment, servo-mechanisms and portable or transistorised equipment.

The ECIL is involved in the design, development and manufacture of three different types of televisions, closed circuit TV, commercial TV and satellite TV. Their closed circuit TV employs transmission of pictures or scenes through cables. It can be effectively used in hospitals, banks, airports, rail terminals etc., and is an example of effective communication. This is being made for the first time in India.

The Corporation will soon enter the commercial TV market with its solid modular commercial receiver of 20 and 24 inches sizes. This has been designed and developed by their own technicians.

INDO - BRITISH TECHNOLOGICAL GROUP MEETS

India has informed of her willingness to the United Kingdom to accept complete shifting of labour intensive industries to this country provided their production can be reserved exclusively for exports. This would be irrespective of the normal consideration that imports of machinery that could be produced in India are generally prohibited.

The Indian Government have also indicated their readiness to agree to setting up of subsidiaries of British companies, if India can make substantial net gain of foreign exchange by such means. The Indian offers are conveyed to the U.K. Government by the Industrial Development Secretary at the start of a three-day meeting of Indo-British Technological Group recently held in India.

It was also conveyed that India would be prepared to make certain policy relaxations to facilitiate shifting of the industries. Normally India's policy is not to import machinery that could be produced indigenously. But if proposals for shifting of industries completely for exports were made, they would be allowed irrespective of their indigenous availability.

In 100 per cent export-oriented cases, even the setting up of subsidiary British companies could be agreed to so long as there would be substantial net gain of foreign exchange to India. Normally, the Indian Government insist on substantial measure of equity participation by Indians in foreign collaboration ventures. Even if export potential is less than 100 per cent of production, the extent of foreign equity could be negotiated.

The relaxations that had been indicated by India hold good for any joint ventures that the two countries might agree to set up for third countries. In such ventures, India can supply substantial portion of plant and equipment on more economical terms.

HUNGARIAN ASSISTANCE FOR ALUMINIUM INDUSTRY

A long term agreement for product development and maintenance of production efficiency in the public sector aluminium plants is proposed to be entered shortly between Bharat Aluminium Company and Chemokomplex of Hungary. This is considered timely in view of the expected commissioning of Korba alumina plant with 200,000 tonnes capacity early in 1973.

The possibility to import machinery and equipment for the Koyna (Ratnagiri) aluminium project under the Hungarian credit was also explored during the discussions recently held between India's Minister for Steel and Mines and the visiting Hungarian Minister for Heavy Industries. The integrated alminium project at Koyna, designed to produce 50,000 tonnes of aluminium metal, is expected to go into production towards the end of 1974.

Hungary indicated their willingness to consider extending financial and technical assistance for setting up the proposed alumina plant in Gujarat of 200,000 tonnes capacity. Assistance for setting up a project design institute for aluminium industry in India was also offered by the Hungarian Minister for Heavy Engineering.

In the field of research and development, the Hungarian delegation have offered to enter into a long term agreement with BALCO (Bharat Aluminium Company) for the application/use of aluminium metal and making their research experience available for the development of aluminium industry in India.

The possibility for exporting alumina to Hungary during the period 1973-75 has been indicated.

INDUSTRIAL GASES
A REVIEW

All important industrial gases are being produced in India in sufficient quantities. The production capacity of Oxygen for instance, was nearly 62 million cubic metres in 1970. The actual quantity produced in that year was 39 million cubic metres at a value of Rs. 75 million. There are 51 units which are presently engaged in the manufacture of oxygen. Recently two new industrial licences were issued for the manufacture of oxygen gas in Bombay area and one licence for the manufacture of oxygen and acetylene in Bokaro area. A few units already engaged in the manufacture of oxygen gas also started recovery of nitrogen obtaining as a bye-product in the air liquid faction method used for the manufacture of oxygen gas.

The annual capacity of acetylene for 35 manufacturers during 1970 was 11.6 million cubic metres and the actual production was 6.12 million cubic metres valued at Rs. 64.42 million.

Twenty units manufactured 6 million cubic metres of nitrogen in 1970 in which year the installed capacity was of the order of 8 million cubic metres. In respect of hydrogen 5 manufacturers share among themselves an installed capacity of 0.97 million cubic metres and the production in 1970 was 0.80 million cubic metres. There are two units, each manufacturing argon and nitrous oxide. The installed capacity of the former was 0.36 million cubic metres and the quantity produced was 0.23 million metres in 1970, while those of the latter were 0.30 million litres and 0.23 million litres respectively. With the capacity installed at a level of 18,000 tonnes, the carbon dioxide industry has 24 units which produced 11,000 tonnes in 1970.

Some of the industrial gases are already active on the export front such as argon, nitrogen and nitrous oxide gases; Nitrogen was supplied to Kenya and argon to Hongkong, Singapore, Malaysia, Ceylon and Kenya among others. U.K., Iran and Tanzania Republic figured among the importers of other industrial gases.

QUALITY CONTROL AND PRODUCT DEVELOPMENT

QUALITY CONTROL FOR ENGINEERING PRODUCTS

As at the beginning of September 1971, 42 engineering products were brought under the purview of compulsory quality control and preshipment inspection measures enforced by the Government of India. The items are cast iron, soil pipes, flash lights, enamel ware, brass utensils, pocket knives, oil pressure stoves butcher's knives, bread knives, ghamellas, carving knives, cooks' knives, mild steel buckets for general use, copper utensils, padlocks, forks (table, fish, pastry and serving) made of brass, nickel-silver and stainless steel, tower bolts, oil pressure lantern, mild steel wire nails, mild steel sliding door bolts for use with padlocks, umbrellas, mortice locks (vertical type), scissors, table knives, dessert knives and fruit knives, hinges, spoons made of stainless steel, brass and nickel silver, drawer locks, cupboard locks and box locks, galvanised steel barbed wire for fencing, wire gauge for general purposes, mild steel and medium tensile stress bars and harddrawn steel wire for concrete reinforcement, carbon steel sheets, cold rolled structural steel, high tensile, carbon steel sheets and strip, hot rolled, rivet bars for structural purposes, structural steel (standard quality), steel sheets galvanised (plain and corrugated), iron and steel wire, galvanised for telegraph and telephone purposes, mild steel wire, high tensile rivet bars for structural purposes, carbon steel bars, billets, blooms and slabs for forgings, structural steel (ordinary quality), structural steel (fusion welding quality), carbon steel bars for production of machine parts for general engineering purposes, carbon steel billets for re-rolling into structural steel (ordinary quality), carbon steel billets for re-rolling into structural steel (standard quality), cast iron manhole covers, electric cables and conductors, diesel engines, power driven pumps, sewing machines, electric fans, automobile spares, components and ancillaries, small tools and hand tools, steel trunks, expanded metal steel sheet, bicycles and bicycle parts, stainless steel utensils, steel tubes and tubulers.

The present programme of quality control and preshipment inspection was launched with the enactment of Export (Quality Control and Inspection) Act, 1963 which came into force in January 1964. The Act empowers the Government to notify commdities that should be subject to compulsory quality control or inspection before shipment. No consignment of a commodity so notified can be exported unless it is accompanied by a certificate or a recognised mark indicating that it conforms to the standard specifications. The Act provided for the establishment of Export Inspection Council to carry out the pre-shipment inspection job of various commodities in the most effective and systematic manner.

For the items covered under the Quality Control Scheme, minimum specifications have been prescribed and a rigorous consignment-wise inspection is carried out. While the buyers' requirements have generally been accepted as the basis of inspection, minium specifications have over-riding consideration in respect of items like cables, where the question of safety is involved. Exports of cables and conductors would normally be permitted only against standards of specifications laid down by a Government Department or an Electricity Undertaking. If the export contract does not fall under the above categories the same would be referred to a panel of exports consisting of top technical personnel belonging to Government as well as industry. The panel examines the contractual specifications from all angles and exports would be permitted only after the same are approved.

The items like diesel engines, bicycles, small tools and hand tools, automobile spares, power driven pumps, sewing machines and electric fans, known as panel items, are covered under a system of in-process quality control. In case of these items, only the manufacturing units exercising adequate in-process quality controls are allowed to export. The adequacy of in-process quality control measures is assessed by Expert Panels consiting of the representatives of Export Inspection Council, Indian Standards Institution, Directorate General of Supplies and Disposals, State Departments of Industries and Small Industries Service Institutes. In-process quality control essentially comprises : bought out materials and components control, process control, product control, packing control, etc.

DEVELOPMENT OF OFFSET ROTARY PRINTING MACHINE

Development and manufacture of a 4-colour Web offset rotary machine in India has placed the country among the top three nations of the world who have so far manufactured such sophisticated high-speed machines. The development of the machine, which is completely indigenous, saves foreign exchange to the tune of Rs. 150 million per annum.

A letter of intent has been recently given by the Indian Government to M/s. Handa Rotary Machines Private Limited, Worli, Bombay-18, who have developed the machine for its manufacture worth Rs. 45 million every year. This capacity is expected to earn and save foreign exchange of Rs. 70 million every year.

The machine is to immediately benefit textbook printing in a big way. This rotary completely eliminates any use of imported spare parts or further import of offset printing machines. India is presently importing printing machinery and equipment worth Rs. 130 million. Besides saving considerable foreign exchange by way of import substitution, the rotaries have good export potential—between Rs. 100–150 million every year; according to the manufacturer. The production of the machine on commercial basis is expected to start shortly. Web with up to 36″ and cut off 24″, 22″ and 17″ will be available as standard sizes. Other sizes can also be built according to the requirements of customers. The company has plans to manufacture 150 commercial web capacity presses and web offset form rotaries out of which major portion is to be exported to U.S.A. and Europe.

SEMI-CONDUCTOR PROCESSING EQUIPMENT

Semi-Conductor processing equipment are used in processing semi-conductor devices such as transistor diodes and integrated circuits. etc. Two types of such equipment, namely laminar flow clean air bench and wafer spin washer/dryer have been developed at the Central Electronics Engineering Research Institute, Pilani.

The special features of the equipment are high speed spin with dry nitrogen blow off; Variable speed; Compact design; Spin chamber transparent, thus allowing full observation of the drying process. The availability of these products in the Indian market would help the fast developing semi-conductor industries in the country.

All the raw materials viz. metal sheet, sun—mica sheets, etc. are available indigeneously. There is no optimum plant size for such products. Any firm having mechanical workshop facilities would be able to undertake the manufacture of these items.

POLARISING MICROSCOPE DEVELOPED

The Central Scientific Instruments Organisation, Chandigarh has developed polarising microscope, used in the study of the properties of minerals and rocks. The instrument has three common accessories viz. quartz, wedge I-IV order, gypsum sensitive tint plate and n/4 plate. It is used by students, geology departments and geological laboratories. At present, the requirement is being met through import.

The main raw materials and components are brass, aluminium, optical glass, quartz crystals, objectives and condensers. All these are available indigenously.

In the initial stages, the institute will be in a position to supply some of the optical components excluding crystal components. Also regarding the special eyepieces, initial orders for a few pieces can be met by the institute. For the fabrication of the instruments, ordinary machines as are used in precision mechanical and optical workshops would be required.

HEAVY ENGINEERING INDUSTRY

Today India has an efficient and organised production base for a wide spectrum of heavy engineering items. Among the industries that can be categorised under the head of heavy engineering, mention may be made of equipment for iron and steel plants, heavy electricals, petroleum and oil and mining industry.

Under the Industrial Policy Resolution emphasis was laid on accelerating the tempo of industrialisation and developing the iron and steel industries in particular. Side by side with the setting up of giant steel plants, special attention was paid to the production development of heavy machinery and equipment particularly those required by the steel plants.

The rapid industrialisation of the country led to capacity generation, expansion and diversification of a large variety of heavy engineering equipment. Currently the industry turns out complete blast furnace equipment, coke oven equipment, cold rolling mill equipment, heavy duty E.O.T. cranes and crawler / truck mounted cranes, excavators, slag cars, oil drilling rigs, irrigation well drilling rigs, coke quenching car, coke pusher, light, medium and heavy structurals, transmission towers, penstocks, lifts, railway wagons, slotted angles and cold formed sections, large diameter pipes, black and galvanised steel pipes and tubes, E.R.W. tubes, seamless steel tubes, wire ropes, bright bars, welding electrodes and many other types of non-standard equipment.

Heavy Engineering Corporation

The establishment of Heavy Engineering Corporation at Ranchi is a milestone in the annals of heavy engineering industry in India. This industrial complex is unique in more than one way. Under its roof, there are three contiguous plants namely Heavy Machine Building, Foundry Forge and Heavy Machine Tools enabling various connected operations like forging, casting, machine building and machine tools manutacturing to be done in a systematic manner.

The Heavy Machine Building Plant is designed for the manufacture of various items totalling 80,000 tonnes a year. The actual production in 1970-71 was of the order of 15,760 tonnes of mechanical equipment and 7205 tonnes of structurals.

Besides being a supplier of bulk of equipment to the sixth Blast Furnace of Bhilai Steel Plant, HMBP is now engaged in the supply of the equipment needed by the Bokaro Steel Plant. HMBP has also launched upon various new products like well drilling rigs. Well drilling rigs have been supplied to a number of State Governments. For the mining industry, a number of excavators of 4.6 cu.m. capacity have been manufactured and supplied besides supplying crushers to Khetri Copper Project. Mention may also be made of the EOT cranes and of oil drilling rigs supplied to other undertakings. Active steps are being taken for manufacture of pelletisation plants, mobile material handling equipment like stackers, reclaimers and loaders etc.

The Foundry Forge plant has an installed capacity of about 14,000 tonnes of castings and forgings per annum. The plant has produced such intricate castings as butterfly valve door, cross beam for hydraulic press, high rolling mill housing, mill heads, large bell, slag pot, big bell hopper, skip winch bed frame and forgings such as stepped shaft for mine winder, crank shafts etc.

The Heavy Machine Tools Plant has an annual production capacity of 10,000 tonnes of heavier range machine tools. Besides machine tools, such allied products as gears, hydraulic drives, unit heads etc. are also being supplied according to customers' requirements.

Structurals

Fabrication of steel structures comprise many items-from a simple structure like ordinary warehouse building to such sophisticated items as large steel plant buildings, railway bridges, penstocks and hydraulic gates and gearings for electrification projects. There are at present about 90 units in the organised sector with an installed capacity of about 360,000 tonnes per annum. The output in 1970 was of the order of 120,000 tonnes.

Transmission line towers also form an important item of steel fabrication for meeting the requirement of power distribution. With 14 units in the production line the actual production in 1971 was around 62,000 tonnes as against 47,600 tonnes in 1970. The capacity installed is of the order of 93,100 tonnes.

Transmission Line Tower is one product that defies standardisation. The design of a tower depends on many factors, but primarily on the loads the tower is expected to carry and the soil on which it will stand. The fact that each transmission line project requires between 5 and 10 different types of towers makes the task still more difficult, as each of these towers has to be individually designed.

The process of tower manufacture does not only involve routine fabrication job but also requires massive preproduction organization consisting of facilities for a full scale lay out of tower making. Since towers are despatched to site in a broken down condition, a very close inspection after fabrication becomes essential.

The Indian industry is now in a position to design and fabricate any type of transmission line tower.

Besides meeting the indigenous requirements, the industry has also entered the export market against worldwide competition by strictly adhering to clients' specifications in materials, workmanship and delivery schedules. During 1970-71 exports of steel structurals and transmission line towers amounted to Rs. 43 million.

The Indian industry is now in a position to take up even turn-key jobs especially in the sphere of design, construction and erection of transmission line towers. Many such turnkey orders have been received by the manufacturing units in recent years. A leading transmission line tower manufacturing unit of Bombay has during 1971-72 (up to end of October 1971) secured orders worth Rs. 164.5 million. The largest order received by the firm was from Libya at a value of Rs. 66 million. Next in importance was the export deal finalised with Iran at a value of Rs. 61 million. The recent orders secured by the firm were from U.S.A. for Rs. 4.6 million worth and from Iran (Tehran ring order) at a value of Rs. 2.9 million.

Steel Pipes and Tubes

India is not only self-sufficient in the production of steel pipes and tubes but has adequate capacity to spare for export.

There are 14 units in the organised sector for manufacture of black and galvanised steel pipes and tubes with a total installed capacity of about 601,500 tonnes. Total licensed capacity till the end of 1971 was of the order of 624,200 tonnes of which 117,500 tonnes was licensed in 1971 alone. The actual production in 1971 was estimated at 218,350 tonnes as against 215,600 tonnes in 1970. The installed capacity in 1970 was nearly 484,000 tonnes.

E.R.W. tubes are manufactured by 6 firms in the country and their installed capacity increased to 53,400 tonnes in 1971 from 50,400 tonnes in 1970. The actual production at 31,920 tonnes in 1971 showed a a downfall as compared to the output of 35,620 tonnes. The total licensed capacity at the end of 1971 was 65,400 tonnes.

With an output of 34,300 tonnes in 1971 as against 29,250 tonnes in 1970, the seamless steel tubes manufacturihg sector has an installed capacity of 39,600 tonnes.

Large pipes of 7 ft. to 8 ft or even more in diametre required for carrying water in bulk over long distances are now fabricated indigenously. The present installed capacity for such pipes is 13,820 tonnes with 5 manufacturing units in the line. The units improved their output from 8343 tonnes in 1970 to 9064 tonnes in 1971.

Export of tubes, pipes and fittings of iron and steel fetched as much as Rs. 106.59 million in 1970-71. The export value of galvanised and non galvanised pipes stood at Rs. 67.3 million while seamless steel tubes and pipes had a share of Rs. 2.1 million. In the first five months of 1971-72 (April-August 1971) overseas supplies of tubes, pipes and fittings of iron and steel was of avalue of Rs. 44.34 million. Of this, galvanised and non-galvanised varieties accounted for Rs. 25.35.

Wire Ropes

Started two decades ago, the industry which is on a stable footing, turns out a wide variety of wire ropes including locked coil ropes in black and galvanised iron or steel. The use of these wire ropes in the mines up to a depth of 350 metres has been approved by the Director General of Mines and Safety, Dhanbad. Foreign technical collaboration is not considered necessary as the indigenous industry has developed sufficient technical expertise.

There are 9 units at present manufacturing wire ropes with a total installed capacity of 36,240 tonnes per annum. During the last five years, the production increased by more than 50 per cent. In 1971 production stood at nearly 20,000 tonnes as against 20,150 tonnes in 1970 and 18,191 tonnes in 1969. Actual production in the years before 1969 was of the order of 14,334 tonnes in 1968, 13,346 tonnes in 1967, 13,319 tonnes in 1966 and 12,869 tonnes in 1965.

The principal raw materials for the industry are high carbon wire rods, zinc and lead. Besides the indigenous sources of supply which account for 66 per cent, a portion of the requirement of raw materials is met by imports.

In the export field too the industry has a notable contribution. From Rs. 9 million worth of exports in 1968-69, the manufacturing units have stepped up the exports to reach the figure of nearly Rs. 16.8 million in 1969-70 and Rs. 17.5 million in 1970-71.

Bright Bars

Bright steel is a gleaming steel, free from any blemish, roughness or dimensional inaccurancy, which is extensively used as the basic material for manufacturing a wide-range of machine parts, components for automoblies, textile machinery, aircraft parts, bulldozers, tractors, pumps, components for motor gears, fans, sewing machines, typewriters, shipbuilding industry, home appliances like dish washers, washer dryers, food mixers and hundreds of other machinery and equipment accessories and parts.

The organised sector of the industry has an installed capacity of 64,500 tonnes which is a 12.2 per cent increase over the 1970 capacity of 57,500. The actual production by the 9 units engaged in the line went up to 56,160 tonnes in 1971 as against 46,300 tonnes in 1970. The assessed capacity of small scale units is about 30,000 tonnes a year.

Bright steel bars and shaftings are produced by the Indian manufacturers in cold drawn form which is accurate in size and tolerance with increased mechanical properties; turned (peeled) form for higher polish and dimensional accuracy; and ground bars for sophisticated products which require the closest possible tolerances. They are produced in round, squares, flats, hexagones and other sections in different lengths, sizes and tolerances to suit customers' requirements.

In view of the setting up of capacity for production of high sulphur free cutting steel bright bars, the industry is getting part of its requirement of raw material from indigenous sources.

The bright steel bars and shaftings industry has set an export target of Rs. 22.5 million for the current year (1971-72). Beginning with only Rs. 10,000 worth of exports in 1963-64, the exports went up rapidly and reached the figure of Rs. 16 million in 1969-70. The 1970-71 exports were however lower at nearly Rs. 12 million.

Welding Electrodes

The welding electrodes industry has fared well in 1971 and the total production went up to 336.5 million running metres from 316.76 million running metres in 1970. The installed capacity is of the order of 497 million metres.

Welding electrodes are required by almost every project not only in the installation stage but even there after for reclamation and repair work. With the changing concept of industrial designing more and more riveted structures are now being changed to that of welded structures. The welding technology is also undergoing fast changes.

Starting with one unit in 1947 to manufacture ordinary mild steel welding electrodes, there are now 20 firms manufacturing all types of electrodes running into hundreds of varieties for different applications like welding of mild steel, high tensile steel, alloy steel and stainless steel and for hard facing work etc.

The units in the electrodes industry have developed necessary technical competence and therefore do not need foreign collaboration for ordinary mild steel electrodes. In fact some of the units are in a position to provide technical assistance to other developing countries.

From importing electrodes a few years back, today the country is exporting the item to many foreign markets. Foreign exchange earning through export of welding electrodes and welding rods in 1970-71 was Rs. 3.41 million, thus registering an increase of more than 62 per cent as compared to the 1969-70 exports which stood at Rs. 2.09 million. As compared to the exports during 1967-68 which was of the order of Rs. 0.6 million, the 1970-71 performance was a five fold increase.

Cranes, Hoists and Lifts

The industry has steadily progressed in the last few years and had an installed capacity of 37,000 tonnes per annum in 1970. The actual production in that year by about two dozen units engaged in the line was 7100 tonnes.

Diversifying the production range, the industry, besides turning out light and medium duty cranes has taken up heavier duty cranes including special ones for steel mill duty, tower cranes, wharf cranes etc.

The 8 units engaged in the production of electric hoist blocks turned out 646 blocks in 1970 and 653 nos. in 1969. Their installed capacity is 8808 nos. per annum. The 5 units manufacturing chain pulley blocks improved their output to 3201 nos. in 1970 from 2323 nos. in 1969. The installed capacity too improved to 12,960 nos. from 12,720 nos. in the comparable years.

There are at present 4 firms manufacturing lifts with a total capacity of 910 numbers. During the year 1971 actual production was of the order of 625 numbers as against 479 numbers turned out in 1970. Lifts up to 500 ft. per minute capacity are now manufactured and these can carry up to 25 persons. Lifts up to 700 ft. per minute capacity are also expected to be produced shortly.

Mechanical handling equipment such as cranes and parts, hoisting and pulling machines, lifts and components and air winches and parts had an export earning of about Rs. 6.5 million in 1970-71 and Rs. 6.36 million in 1969-70. In 1970-71 cranes and parts had a share of Rs. 3.14 million and lifts and components Rs. 2.43 million. Hoisting and pulling machines fetched about Rs. 860,000 in the year.

Railway Wagons

With 16 units in the line the licensed capacity for the manufacture of railway wagons is 40,869 numbers in terms of four wheelers. The installed capacity is of 32,319 numbers and the actual production in 1971 was around 7760 numbers.

This industry is now well established and turns out wagons of all kinds comparable to the standards of advanced countries. Indian wagon manufacturers have entered the export market in a big way and have secured large orders from many countries in South East Asia, West Asia, Africa and East Europe. Export value of wagons, coaches and parts touched Rs. 28.17 million in 1970-71 as against Rs. 8.34 million in 1969-70.

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Heavy Plates and Vessels

The production of sophisticated equipment required by the fertilizer, petroleum, petro-chemical and other process industries has been set up in the country. A unit, M/s. Bharat Heavy Plate and Vessels Ltd., has been inaugurated in August 1970 at Visakhapatnam. The project will have a capacity of 23,210 tonnes for items like columns, pressure vessels, heat exchangers and so on and the value of output is estimated at Rs.150 million. Trial production in the project has already started in 1969. During 1969-70, 240 tonnes of equipment was manufactured while it was 548 tonnes in 1970-71. The project is expected to save foreign exchanges of about Rs. 90 to Rs. 100 million when in full production.

The year 1971-72 will be the first year for the regular production of the factory when 10 per cent of the rated capacity is expected to be reached. The production will be stepped up from 2500 tonnes in 1971-72 to 4600 tonnes in 1972-73, to 9200 tonnes in 1973-74, 17000 tonnes in 1974-75 and about 90 per cent of the rated capacity, i.e. 21,000 tonnes thereafter.

The range of production of the factory is being expanded. One of the items being taken up for design and manufacture is extra high pressure vessels required for the synthesis of ammonia, methanol and urea. Another item that is being taken up is the design, manufacture and supply of complete air and gas separation plants required by the steel, fertilizer and other process industries.

Other Items

The heavy engineering sector turns out other items like penstock, slotted angles and cold formed sections, steel doors, windows, rolling shutters etc.

With an installed capacity of 13,500 tonnes, the four units manufacturing penstocks increased their output to 8273 tonnes in 1971 from 7164 tonnes in 1970. Similarly production of slotted angles and sections picked up and touched 4368 tonnes in 1971 from 3762 tonnes in 1970. The installed capacity is of the order of 12,300 tonnes. Production of steel doors, windows and shutters by the 3 units in the organised sector was 1950 tonnes in 1971 and 2821 tonnes in 1970.

In the export trade too these items are active and about Rs. 1.16 million worth of steel slotted angles, steel doors, windows and shutters were exported in 1970-71.

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EXPORT UPTREND OF DIESEL ENGINES

India–made diesel engines of different range in horse power have been increasingly sought by world markets. Export earnings of diesel engines, parts and diesel pump sets amounted to Rs. 26.78 million in 1970-71 which was higher compared to Rs. 24.69 million in the preceding year. In 1970-71, nearly 4000 numbers of diesel engines were exported to the tune of Rs. 16.27 million to markets like the Arab Republic of Egypt, Sudan, Saudi Arabia, Thailand, Nigeria, Iraq and Syria.

The country has an installed capacity of 9000 numbers of vehicular type of diesel engines and 155,000 numbers of stationary diesel engines. Actual production of vehicular engines in 1970 was only 3600 numbers while that of the stationary engines was 68,115 numbers.

M/s. Gujarat Export Corporation, Ranchhodlal Marg, Ahmedabad has recently booked export orders for diesel engines worth Rs. 4 million. The East and West African markets were the main purchasers of the company's products.

In addition to the overseas supply of diesel engines, the firm booked orders for machine tools like lathes, drilling machines, industrial machinery, such as wire nail making plant, pipe fittings, bicycle accessories, auto spares etc.

AUTOMOBILE SHOCK ABSORBERS AND EXPORT TRADE

India's export value of automobile parts was of the order of Rs. 202.97 million in 1970-71.

Among the various categories of automobile equipment exported, M/s. Hydraulics Limited, 29 Mount Road, Madras-2, have booked firm export orders with Syria and Philippines for the supply of shock absorbers, at a quantity of 2620 numbers. The supplies are to be shipped within two months. The telescopic automobile shock absorbers being manufactured and exported by the firm have already attracted the attention of importers in Arab Republic of Egypt, Sudan, Iran, Ceylon, U.S.A., U.K., Cyprus and Kenya. To Ceylon and Arab Republic of Egypt, the firm has already executed several orders.

The Madras company has a Research and Development Department, which has developed shock absorbers, suitable for different kinds of vehicles as also for non-automotive applications such as dampers for industrial equipment. It can offer competent packaging facilities for the shock absorbers that they export so as to withstand seasonal hazards.

CRANE EXPORT TO SINGAPORE

A 20-tonne semi-Goliath crane has been recently exported by an Indian firm to Singapore. The export order was secured in the face of severe competition particularly from West Germany.

The Indian firm which has executed the export order, M/s. Western Mechanical Industries Private Limited, Vulcan Insurance Building, Churchgate, Bombay, introduced computerisation in the crane industry and is in a position to effect deliveries within the least time possible. This is one major reason that the company was able to book the orders from Singapore at a value of Rs. 0.6 million.

The Bombay firm has been in existence for the last thirteen years and has established itself as a manufacturer of electrically operated overhead travelling cranes of all capacities ranging from one tonne to 25 tonnes.

The firm expects to receive repeat orders from the Singapore importer, M/s. Bethlehem Singapore (P) Ltd., a subsidiary of Bethlehem Steel of the U. S. A. The Indian firm is also to negotiate for the export of 6 EOT cranes to Singapore.

India's total exports of cranes and parts during 1970-71 were of the order of Rs. 3.14 million. Kenya was the leading importer having absorbed cranes worth Rs. 1.39 million. Singapore's imports in that year were valued at Rs. 0.7 million. Ceylon, Arab Republic of Egypt and Thailand were the other major markets.

EXPORT TRADE IN HAND TOOLS

The Indian industry has established its reputation as a competent supplier of a surprising range of hand-tools and small tools to the world markets. During 1970-71, India's export value of handtools, cutting tools and small tools amounted to Rs. 43.77 million as

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against Rs. 26.60 million in the preceding year. Among the principal categories of handtools exported, pipe wrenches fetched Rs. 6.95 million in the year with U.S.A. as the top ranking importer. Pliers earned Rs. 1.52 million (Federal Republic of Germany, U.K., U.S.A. and Czechoslovakia mainly), spanners Rs. 13.14 million (Czechoslovakia, U.S.S.R., Federal Republic Germany, U.K. and Iran being the major markets), steel files Rs. 6.23 million, tungsten carbide tips and powders Rs. 2.05 million, twist drills Rs. 5.70 million, vices Rs. 1.31 million and diamond tools and bits over Rs. 2 million.

M/s. Gedore Tools (India) Private Limited 151, Golf Links, New Delhi-3, are one of the leading manufacturer–exporters of hand tools in India. For delivery within the next six months the firm booked orders from over 40 countries at a value of Rs. 20 million The firm received a continuous stream of repeat orders They have plans to increase their capacity by 10 per cent by the end of 1972 and by 25 per cent by 1973-74. They have introduced new items in their export business and have also modified packaging facilities according to the requirements of importers abroad.

PLASTIC ELECTRICAL ACCESSORIES TO SUDAN

Sudan has placed an export order for the purchase of house-hold electrical wiring accessories on M/s. Khosla Plastics Private Limited, 43 Aundh Road, Kirkee, Poona-3. The Sudanese market has placed the order on the firm for the first time. Earlier they have received enquiries from Nigeria, Kuwait, Iraq, Burma and Hongkong for the supply of house-hold electric wiring accessories. The firm has already established itself as a regular exporter in the line to Burma and Hong Kong. Being in export business for over a decade the company has plans to establish additional capacity by the end of 1972 for meeting the increasing export demand.

FINISHED LEATHER PRODUCTS TO WORLD MARKETS

India's export capacity of finished leather products is a recognised fact in the world business circles.

Several countries including West Germany, France, Netherlands, Czechoslovakia and U.S.A. have recently finalised export deals with M/s. Light Leathers Private Limited, 47, Thiruneermalai Road, Chromepet, Madras-44. The products sought by these markets are clothing suedes and kid suedes. The firm orders booked by the company for supply before March 1972 total to Rs. 0.76 million. Excepting in case of Netherlands all the orders booked by other countries are in the nature of repeat orders.

Among the leather products manufactured and marketed by the firm are clothing suedes, garment leathers, kid suedes, etc. They have plans to increase production capacity to be able to meet the rising export demand. They are continuously involved in the selection of proper grades of raw materials to suit the requirements of specific markets. They are also constantly trying out indigenous products and improvised techniques consistent with the quality of the finished leather demanded by the importing markets.

INDO-MALAYSIAN VENTURE COMMISSIONED

India's joint industrial venture involving Malaysian $ 1.8 million (Rs. 4 million) has been recently commissioned at Kualalumpur by the Malaysian Trade and Industry Minister.

The venture set up by M/s. Kirloskar Electric Company, Malleswaram, Bangalore–3 is to initially turn out electric motors and alternators, diesel engines, centrifugal pumps and sluice valves for the markets of Indonesia, Thailand, Singapore and Malaysia.

The Indian firm has invested 50 per cent of capital outlay in the form of machinery. The other 50 per cent came from the Malaysian Insurance Undertaking (Rs. 1.5 million) and Malaysian nationals (Rs. 500,000).

OVERSEAS SALES OF FOOTWEAR

Footwear made of leather, rubber, plastic and the canvas has been prominent in India's export trade in the recent months. In the first five months of 1971-72 (April-August 1971) footwear exports were higher at Rs. 53.64 million as compared to Rs. 37.25 million earned in the corresponding period of the preceding year. In the full year of 1970-71 the footwear exports were Rs. 114.40 million while it was Rs. 92.31 million in 1969-70.

Of the 1970-71 exports, rubber footwear earned Rs. 1.59 million, leather soled and embroidered uppers Rs. 1.2 million, all leather closed toe footwear Rs. 55.63 million, all leather open toe footwear Rs. 18.21 million, rubber soled upper canvas footwear Rs. 21.57 million and rubber soled upper leather footwear Rs. 13.52 million.

M/s. Carona Sahu Co. Ltd., 143, Mahatma Gandhi Road, Bombay is one of India's major producers of canvas rubber and leather footwear of various types. During May 1970-April 1971 the company's export trade amounted to Rs. 3.2 million as against Rs. 2.28 million for the previous year. The net sale of the company increased by 6 per cent to Rs. 58.9 million in the year ended April 1971. To fulfil their export commitments they had even to impose cuts on their production for meeting the local demand.

KNOW-HOW OF CEILING FANS TO IRAQ

An agreement was concluded with the State Electrical Industries Co. of Iraq for the establishment of a factory there for the manufacture of ceiling fans with Indian know-how. The Indian firm M/s. Crompton Greaves Ltd. Bombay who are the technical consultants under the agreement are responsible for planning and guiding Iraq project to the stage of full production and for the provision of designs, know-how and training as well as for the supply of equipment and tooling, assemblies, components and raw materials.

The company's exports during the year ended June 1971 totalled Rs. 7.3 million. Export orders secured during the year exceeded over Rs. 13 million. A considerable improvement in their export trade is expected in the current year as large orders are on hand.

Indian industry has already secured considerable expertise in the manufacture of electric fans. With 1.6 million numbers of fans of annual production, India is one of the foremost producers of electric fans in the world. The installed capacity is of the order of 1.8 million numbers per annum.

The fan industry in India produce a wide range of products including general utility fans, ceiling fans, table fans, cabin fans, pedestal fans, railway carriage fans and air circulators. Apart from products which are used for domestic purposes, the industry also produces industrial fans, exhaust fans and blowers.

Exports of electric fans was of the order of Rs. 14.38 million in 1970-71. Ceiling fans were the foremost category exported at a value of Rs. 12.58 million. Pedestal fans, rail carriage fans and table fans are among the other types available for export.

Iraq was the leading buyer for complete electric fans at a value of Rs. 8 million in that year. Sudan and Kuwait were the markets next in importance. Nigeria, Iran, Singapore, Arab Republic of Egypt, Malaysia and Australia were among the other importers.

EXPORT SUPPLIES OF CABLES

Electric wires and cables, fetched Rs. 106.83 million in the context of India's export trade during 1970-71. Of this, insulated cables and wires alone earned Rs. 27.05 million. USSR, Kuwait, Singapore Qatar, Iran, Agrentina, Ceylon, Chile, German Federal Republic, German Democratic Republic and Trucial Oman were among the principal purchasers.

The export effort of M/s. Siemens India Bombay during 1970-71 was about Rs. 10.5 million of which the major share was of cables manufactured by the Cable Corporation of India Limited. The cable exports were mainly directed to Singapore and the Soviet Union.

The company manufactures a wide variety of products ranging from switchboards, railway signalling equipment, X-ray and other electro-chemical equipment, special purpose motors, power and distribution transformers, etc. in additian to cables and wires for power application.

GASKETS IN EXPORT BUSINESS

Gaskets made of asbestos, metal, plastic, paper and textiles are exported by the Indian industry. In 1970-71 metal plastic gaskets are supplied overseas to Greece and Arab Republic of Egypt while asbestos gaskets were exported to Burma, Arab Republic of Egypt, Iran, Greece, Iraq, Sudan, Viet Nam Republic and Thailand and textile gaskets were exported to Iran and Kenya.

All types of gaskets are evported by M/s. Payen-Talbros Pvt. Limited, 14/1, Delhi-Mathura Road, Faridabad. They have plans to supply Rs. 0.5 million worth of gaskets to Iran, Lebanon, Kenya, Syria, Singapore, Philippines and Thailand. They have already been supplying to these markets and have an additional export capacity of 12.5 million numbers of gaskets.

MACHINE TOOLS AND EXPORT PROMOTION

A wide range of machine tools are already being exported by the Indian industry. In 1970-71, the export value of the tools stood at Rs. 20.83 million. The major importers were Netherlands, German Federal Republic, Ceylon, U.S.A., New Zealand, Malaysia, Canada, Yugoslavia and Australia. Additionally, electric machine tools and drills were also exported to the tune of Rs. 6.09 million in the year with U.K. and Sweden as the principal buyers.

M/s. Ex-Cello-India Limited, 78 Dr. Annie Besant Road, Bombay-18 (WB), have been supplying abroad a large range of machine tools including special purpose machines, fine boring machines, facing and centering machines, way type machines, multispindle drilling and tapping machines, cylinder boring machines, line boring machcines, ram turret milling machines, center lapping machines, tool grinders, steering gears and propeller shafts. They have recently booked firm export orders worth Rs. 1 million for supply of four-five boring machines to the Australian market. In addition, they have executed an order to the U.S.A. for the supply of precision parts.

The firm has spare production capacity for meeting additional export orders for a value of Rs. 3.5 million annually. Aside from their supplies to Australia and U.S.A. the firm has received enquiries from several other countries, namely, West Germany, France, Arab Republic of Egypt, Malaysia, U.K., Switzerland, Greece, and Thailand for the supply of special purpose machines, precision parts, and ram turret milling machines.

ORDER FOR HARD GELATINE CAPSULES

Despite competition from American firms, M/s. Associated Capsules (Pvt.) Limited have bagged a sizeable export order from Nairobi. The first consignment of Rs. 0.3 million order is being processed.

The company is also negotiating for export orders with U.K., Ceylon and Malaysia.

In India there are four units engaged in the manufacture of hard gelatine capsules. On an average they have been producing a wide range of capsules at the rate of 800 million per year. With expansion of capacity underway, the industry will however soon be able to produce 1200 million capsules which can not only meet the domestic demand but will have adequate surpluses for export.

EXPORT PERFORMANCE AND POLICY

CASHEW EXPORTS ON UPTREND

Exports of cashew kernels during April-January 1971-72 were up by 10,512 tonnes in quantity and Rs. 96.4 million in value than during the same period of the previous year. In the period under review in 1971-72 the quantum exported was 54,184 tonnes and the export value was Rs. 550.23 million.

Among the countries which have increased their offtake during 1971-72 were the U.S.A., U.S.S.R., U. K., Canada, Japan, and Australia.

Export of cashew nut shell liquid during April, 1971 to January 1972 was less by 1165 tonnes compared to the 5482 tonnes exported in the corresponding period of the previous year. Value-wise there was a decline from Rs. 6.16 million to Rs. 4.83 million in the export performance. The imports by the U.S.A. has largely accounted for the decline in India's export of this product.

The quantity of raw cashew nuts imported during April 1971 to January 1972 was 131,675 tonnes which was more or less the same as the imports in the same period during the previous year.

The net foreign exchange earned by the cashew industry during the period reviewed in 1971-72 was appreciably more at Rs. 336.6 million as against Rs. 227.7 million in the corresponding period of 1970-71. This increase in the net foreign exchange earnings was obviously due to the increase in the total exports of cashew kernels while the imports of raw cashew nuts were maintained.

PROCESSED FOOD PRODUCTS

EXPORT TREND

The export value of processed food products falling under the purview of the Processed Foods Export Promotion Council, New Delhi amounted to Rs. 110 million during first eight months of 1971-72 (April-November 1971). This was an improvement of 21 per cent over the export value in the corresponding period of 1970. Based on export trend it is expected that for the year 1971-72 exports of processed foods are likely to reach Rs. 170 million.

The value of exports in the line during 1970-71 was Rs. 154.58 million. In the three preceding years, namely, 1969-70, 1968-69 and 1967-68, the export trade was Rs. 116.28, Rs. 99.20 and Rs. 60.43 million respectively. Recently there have been significant, increases in respect of guar gum, instant tea, papads, wheat bran, scented supari, starch and its derivatives confectionery products. Dehydrated onions constitute a welcome addition to the number of items of export in this line. The export of this product was nearly Rs. 2.4 million during 1970-71.

An imporant development in the context of processed foods export has been the increasing demand for new products for health image. The demand for health foods has been increasing in the more prosperous countries. It has been estimated for example that one out of three adults in West Germany is a consumer of a special diet and health foods. In Sweden fresh milk of a high nutritional value with only 0.5 per cent fat is finding increased acceptance. In Austria, U.K. and Netherlands, sterilised egg-milk mixtures have been introduced with great success. These developments are pointers to the scope for Indian industry to absorb the rising world demand for suitable efforts of research and marketing. There is large scope in India for formulating fruit products with higher protein and nutritional value according to the Chairman of the Processed Foods Export Promotion Council.

INDO-YUGOSLAV TRADE PROTOCOL

A Protocol extending the existing trade agreement between India and Yugoslavia by the end of 1972 has been recently signed. The existing arrangament is on clearing basis (Rupee payment). It was agreed that from January 1973, the trade between the two countries would be on convertible payment basis.

Trade lists for 1972 were drawn up along with the Protocol. It is expected that there would be substantial increase in mutual trade.

The Protocol was signed by the Deputy Minister of Forign Trade on behalf of India.

INDIAN EXHIBITION IN NIGERIA

Covering an area of about 3 acres, the Indian Industrial Exhibition was recently inaugurated in Lagos State, Nigeria. The Military Governor of the Lagos State, who inaugurated the Exhibition paid compliments to India's progress in her efforts to attain self-sufficiency in the economic field. The Indian High Commissioner in that country stated that the Exhibition was in line with the Charter established at the Lusaka Conference which called for coordinated and planned economic cooperation among the countries of the third world. He explained that India's exports range from bicycles and sewing machines to railway engines, and heavy engineering equipment. The country is also in a position to provide expertise, technical know-how, and a complete range of consultancy services which includes steel and petrochemicals, he added.

The Exhibition presents a variety of products ranging from traditional items of textiles and handicrafts to sophisticated items like machine tools, diesel engines, industrial machinery, automobiles, bicycles, sewing machines, electronic equipment and even a trainer aircraft.

S.T.C.'s JOINT VENTURE

With a paid-up capital of one million Hong Kong Dollars, of which the Indian contribution will be 50 per cent, the State Trading Corporation of India is to enter into their first ever joint venture abroad in Hongkong by April this year. The proposed firm will have the right to sell Indian products throughout East Asia, although there would not be any bar on direct sales in the region by the Corporation, through its offices in Hong Kong, Bangkok and Singapore.

The Corporation hopes to achieve the target of Rs. 900 million of total turnover during the current year of which over Rs. 290 million would be in exports alone representing 47 per cent of India's total foreign trade. The STC's share was only 1.3 per cent four years ago.

QUALITY CONTROL MEASURES IN 1971-72

In the seventh year of its existence the Export Inspection Council which is an authoritative body to enforce quality control and inspection measures for export products have added quite a few new commodities during 1971-72 under purview of compulsory quality control scheme.

The fresh commodities that have been added in the agricultural and food products section were coriander, fennel, fenugreek and celery seeds and frozen lobster tails. Preliminary work has also been done for bringing curry powder, senna leaves and pods, E.I. tanned skins, rose wood, fruit and fruit products and de-oiled cakes under the scheme.

In the chemicals and allied products sectors, 5 new items, namely aluminium chloride, barium chloride, calcium chloride, zinc sulphate and potassium permanganate have been covered under the scheme during the year. Preliminary work was also carried out to collect necessary data for formulating comprehensive standards for export for items like rubber hoses, rubber hot water bottles, rubber ice bag and PVC leather cloth.

Transmission line towers have also been covered under the compulsory quality control and pre-shipment inspection scheme as far as the engineering products are concerned. In the textile group general specifications were formulated jute products namely hessian carpet backing and hessian bags and have been enforced during the year.

Facilities for testing various types of jute products have also been carried out in the laboratory and the export inspection agency at Calcutta. The test facilities at other laborators were also strengthened.

So far 85 per cent of the exportable commodities have been brought under some system of compulsory quality control preshipment inspection services. Steps are continuing to streamline the scheme already in operation. Super-inspections and checks are regularly carried out to ensure that the entire inspection system is efficient.

EXPORT QUOTA OF BENGAL DESHI COTTON

In view of the improved supply position, the Government of India allowed the export of additional quantities of Bengal Deshi and other permissible varieties of cotton for export. The quota for export of Bengal Deshi Cotton has been increased by 25000 bales.

The ceiling of 200,000 bales announced for the current season has been thus increased to 225,000 bales, according to the Textile Commissioner, Bombay.

TRADING IN MINERALS AND METALS

A REVIEW

The total trade turnover of the Minerals and Metals Trading Corporation during 1971-72 is expected to be around Rs. 2800 million. The turnover was Rs. 2510 million in 1970-71 as against Rs. 1370 million during the preceding year.

The major items of export handled by the Corporation are iron ore, manganese ore, ferro-manganese and ferro-manganese slag and coal and coke. The total exports of these mineral ores by the Corporation at Rs. 1050 million during 1970-71 were up by about 15 per cent over the previous year. The Corporation's export trade during 1971-72 might register a slight fall as compared to the export value in the previous year in view of certain factors like the recent recession in the steel industry, stiff competition in the international markets, outbreak of war with Pakistan which considerably disturbed the shipment schedules.

Iron ore constitute about three-fourths of the Corporation's total export trade. During 1970-71 it was able to push up its exports of the ore to nearly Rs. 800 million - 16 per cent higher over the previous year. With an offtake of nearly 8.6 million tonnes valued at Rs. 570 million during 1970-71 Japan continues to be the largest single buyer of Indian iron ore. There is a tendency on the part of the Japenese steel mills to go slow during 1971-72 due to the present recession in the steel industry.

Despite keen competition in the world markets, the Corporation was able to increase exports of manganese ore to Rs. 135.2 million during 1970-71 from Rs. 111.0 million during the previous year. The expectation is to retain this level of export even during 1971-72 notwithstanding the continuing slump in the Japanese steel industry.

Ferro-manganese exports by the Corporation stood at Rs. 80 million in 1970-71. Due to heavy depression in the international market particularly in U.S.A. owing to 10 per cent surcharge imposed by that Government and the steel workers' strike as also increased production in Japan and other ferro-manganese producing countries, the export of ferro-manganese is like to register a decline during 1971-72.

Export of coal increased to Rs. 38.2 million in 1970-71 as against Rs. 23.7 million during the previous year.

The Corporation made a beginning in the export of some quantities of kyanite and vermiculite during 1970-71.

The items of import handled by the MMTC include steel, non-ferrous metals and fertilizers. Their imports during 1970-71 at Rs. 1450 million were more than thrice the volume of imports handled during the previous year. In 1971-72 the range of imports by the Corporation has urther widened and the turnover is likely to be of the order of Rs. 1800 million.

RECENT PROGRESS AT UNCTAD

The permanent machinery of United Nations Conference on Trade and Development has made progress during 1971-72 in implementing the recommendations of the Second meeting of the Conference. The Trade and Development Board and all the four important committees, namely Committee on Commodities, Committee on Manufactures and Semi-manufactures, Committee on Shippings and Committee on Invisibles and Finance Related to Trade have reviewed the progress in their respective fields.

The Trade and Development Board held its 11th session during August-September 1971 and adopted agenda for the third session of UNCTAD scheduled to be held in Santiago (Chile) during April-May 1972. In the field of commodity trade, diversification has been recognised as an important instrument for accelerating socio-economic growth of developing countries. The Committee on Commodities requested the UNCTAD Secretariat for collecting and disseminating information relevant to decision making in diversification. It also approached the World Bank and other financial institutions to consider giving priority in their lending policies to improve the competitive position of natural products facing competition from synthetics and to improve the quality and yields of basic food crops in the developing countries. The Committee considered cocoa as a commodity in depth. The Wording group on synthetics and substitutes made progress in its studies on the commodities facing competition, namely, hides and skins, leather, cotton, rubber, jute and hard fibres. During 1971-72, the international wheat agreement was also reviewed.

In the field of manufactures and semi-manufactures the Generalised System of Preferences came into force since July 1, 1971 with EEC giving effect to it. The Japanese Scheme was introduced from August 1, 1971 and the Norwegian Scheme from October 1971. U.K. and Sweden introduced their GSP offers with effect from January 1, 1972. The other developed countries who have made the offers are U.S.A., Canada, Ireland, New Zealand, Denmark, Finland, Austria and Switzerland. UNCTAD is already continuing work on non tariff barriers on the products of developing countries for imports into the markets of developed countries. In the field of shipping, a positive climate of cooperation between the developing and developed countries has been adopted and the question of evolving an agreed code of conduct for shipping conferences is being examined. Studies are in progress on the development and improvement of port facilities in the developing countries.

The first session of the Inter-Government Group on Transfer of Technology constituted by UNCTAD met in June 1971 and identified channels and mechanisms for the transfer, costs of the transfer, access to technology etc.

Preparatory to the Third Session of UNCTAD, the group of 77 Developing Countries met at Lima (Peru) during October-November 1971 which was preceded by meetings of Asian, African and Latin American countries at regional level. The Group's meeting was attended by 96 developing countries and attempted to harmonise regional situations as well as to adopt a common philosophy and programme of development of the group prior to the Third Session.

Preparations at the national level are also well underway in India and several panels and working groups have been constituted for the purpose. The subjects covered by these panels and working groups relate to commodity problems and policies, export promotion of manufactured and semi manufactured products of interest to developing countries, development finance and aid, shipping and freight matters, trade expansion, economic cooperation and regional integration among developing countries, trade with socialist countries, long term trends in world trade and developments including activities of UNCTAD, transfer of technology, special measures for least developed among developing countries and review of principles of international trade and institutional machinery of UNCTAD. All the panels and working groups have initiated action in their respective fields. The preparatory committee has already met once and the progress made by the panels and groups was reviewed.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

FOREIGN FIRMS TO SHIFT PLANTS TO INDIA

Four important foreign firms are to close down their manufacturing operations abroad and shift their plants to India under a deal approved by the Indian Government. The deal envisages outright purchase of these plants by the Indian collaborators of these firms for export of the entire production to the principals abroad. The plants will thus be wholly Indian owned catering to the export markets exclusively.

The decision by the four foreign firms to vacate some of the areas of operations in favour of their Indian collaborators emerge from the fact that it could no longer be economical for them to continue in these lines of production and also because of the Indian counterparts have already developed sufficient expertise in the lines. Of the four firms three are from the United Kingdom and one from the Netherlands. The three British firms, namely, M/s. Ottermill, Bulters and Villiers manufacture low-tension switchgears, super sharpers, machine tool, and internal combustion engine parts. The Dutch firm, Janson Fabrikon, manufactures shock absorbers and hydraulic jacks.

The plants of these four firms are to be sold to M/s. Easun Engineering Company, Madras, Kirloskar Brothers, Poona, Srivastsa Exporters, Madras and Associated Engineering Works, Delhi respectively.

The Indian Government are not only prepared to offer concessions but even to revise some of the conditions governing the foreign participation in the Indian industry so as to encourage shifting of foreign plants to India for export production.

A few such other proposals are in the process stage, and include firms in Denmark, West Germany and U.S.A.

The previous issue of the weekly has carried out details of the discussion at Indo-British Technological Group.

AGRICULTURAL EQUIPMENT AND PRODUCTION TRENDS

In the agricultural tractor industry there has been an increase in the installed capacity to 32,200 numbers per annum in 1971 as against 25,000 numbers per annum in the preceding year. The number of units engaged in the manufacture of tractors has gone up from 5 to 6 in the respective years. The six units have produced 16,443 numbers during 1971 as compared to 19,931 numbers in the preceding year. Some of the tractor manufactures are also producing matching implements such as cultivators, harrows, ploughs, seed drills etc. for supplying along with the tractors produced.

In the power tiller sector only one unit, namely, M/s. Krishi Engines Private Limited Hyderabad has been in regular production. Their installed capacity as in 1971 was 1000 numbers per annum and the actual output in the year was 146 units. A second unit at Bangalore is well on way to come into production at the rate of over 300 units per month. A third unit is coming up at Kanpur and is likely to go on production stream by mid-1972. The import content in the field of power tiller production is also negligible in respect of Hyderabed Unit. The present indigenous content is fairly high (65 per cent in respect of Banglore Unit). Another Banglore unit has been licensed for the manufacture of tractor drawn combine harvestors as also power harrows, fertilizer distributors and seed control. This unit has been in production since 1970. Their production of tractor-combine harvester during 1971 was 235 numbers. Forty units are engaged for the manufacture of power driven pumps in the organised sector. Their installed capacity in 1971 was of the order of 454,780 numbers while the quantum of production was 243,666 numbers. About 70 per cent of the power driven pump production is for agricultural purposes although a few firms are also engaged in the manufacture of specialised pumps required for petro-chemical and fertilizer industries. One of the units has also taken up the manufacture of sophisticated types of pumps for nuclear application.

Production capacity for agricultural discs was 400,000 per annum in 1971. Three units have been in regular production and three more have been already licensed. The production achieved during 1971 was 114,814. The remaining three units are expected to go into regular production from 1972 onwards.

SOAPS AND SYNTHETIC DETERGENTS

India's installed capacity for soap production was about 212,620 tonnes in 1970. The 41 units engaged in the industry have succeeded to produce more than the installed capacity at 232,400 tonnes, at a value of Rs. 698.4 million in the same year.

Production of laundry soap is reserved for development in the country's small scale sector. Only the toilet variety is considered for expansion in the organized sector.

Five units manufactured synthetic detergents to the tune of 31,390 tonnes in 1970 out of an installed capacity of 47,580 tonnes. The expansion of capacity granted in respect of three of the five units was implemented recently. The other schemes approved for manufacture of synthetic detergents are also progressing towards implementation.

Encouragement is offered by Government for the manufacture of synthetic detergents by allowing the import of essential non-indigenous raw material namely alkyl benzene. Detergent bars and cakes were produced at a level of about 32,000 tonnes in 1970.

Soaps have come to stay in the country's export trade. The export value of soaps, cleansing and polishing preparations during 1970-71 stood at nearly Rs. 9.5 million. Of this, soaps alone fetched Rs. 5.86 million. The soap varieties exported include bars, soap flakes, chips and powder, tablet cakes, household laundry soaps, medicated soaps, shaving soaps and toilet and dental soaps. Among the surface acting agents and washing preparations that are supplied overseas, synthetic detergents were exported (mainly to USSR) in 1970-71, at a value of Rs. 2.83 million. Polishes, pastes and powder preparations like abrasives, polish compositions for application to leather, metal etc. are also active in the export business.

PLANS FOR PAPER PRODUCTION BOOST

The Government of India have plans for creating additional capacity in the paper industry by encouraging new units to come up as well as old units to expand. To tide over the temporary shortage of paper making machinery needed by both the new and existing units for creation of additional capacity imports are likely to be liberalised.

Recently letters of intent for an additional 400,000 tonnes capacity are reported to have been issued. The government owned Paper Corporation is also expected to set up soon a new capacity of 150,000 tonnes.

In 1970 there were 57 manufacturing units engaged in the production of paper and paper-board with an installed capacity of 768,000 tonnes per annum and actual output of 740,000 tonnes (Rs. 1480 million). For the production of paper and pulp machinery 13 units have an annual capacity of the value of Rs. 60.6 million. In 1970 the actual output of the machinery was of the order of Rs. 34 million. More units are reported to be under way to set up additional capacities for the production of paper machinery.

The type of equipment that is currently manufactured by the paper and pulp machinery producers in India includes complete small scale paper plants, complete board-mill plants, paper coating plants, tissue making plants, fourdinier wire cloth for paper machine, brown stock washers, bamboo chipper screens and finishing refiners.

Large scale paper and pulp making plant industry in the country is capable of manufacturing complete large scale plants. The production in this industry has risen from Rs. 13.4 million in 1963 to Rs. 34 million in 1970.

AIRPORT ELECTRONICS PROJECT

An export processing zone in electronics at Santa Cruz Airport, Bombay has reached the final stage. An electronics delegation from India recently visited the Far East, Japan, U.S.A., U.K., France and West Germany o study the operations of export proecessing zones abroad and to identify advance foreign market opportunities for specific items of electronic equipment and components to be processed in the zone.

The product-mix of the project sponsored by Trade Development Authority, New Delhi will include computer peripherals, video cassettes, data terminals, automobile electronics, electronic communication equipment such as trans receivers, industrial eleotronic controls and electronic exchange equipment.

It is expected that an annual export of US $ 100 million can be built over a four-year period in electronics, the bulk of it to be contributed by the Santa Cruz Airport, as against the current Indian export of $ 4 million per annum.

BOKARO IN OPERATION STAGE

The Bokaro Steel plant has recently entered the operation phase when the first coke oven battery was lighted up. The 100 metre high chimney of the coke oven battery, marks a significant milestone in the construction of the steel project.

The coke oven is to be heated up gradually and continuously for the next three months to prepare it for the production of coke and synchronise with the commissioning of the first blast furnace complex in June this year.

The tempo of construction at Bokaro has been substantially raised during the last 15 months. In the erection of structurals and equipment, the rate of progress has been more than doubled during 1971. In respect of civil engineering works all major activities covering excavation, concrete, and underground communication have received a boost.

The civil engineering works for the construction of the Bokaro plant commenced in October 1967 and first blast furnace complex is thus to be completed in four years and nine months.

Bokaro is being expanded to the 4 million tonnes stage. There are in fact plans to raise the capacity even further to 5.5 million tonnes. This steel plant would be the biggest not only in India but in the entire South East Asia. It is being built with a large percentage of indigenous equipment and material. Nearly 70 per cent of the equipment and over 95 per cent of structurals for the first stage (1.7 million tonnes) would come from indigenous units spread all over the country and a number of items are being manufactured in India for the first time.

ANALYSIS OF INDIA'S IMPORT TRADE

During January-August 1971 India's import trade amounted to Rs. 12,057 million as against Rs. 10,791 million in the same period of 1970. The major highlight of the import trade in the period was reductions in the import of foodgrains, fruits and vegetables mainly raw cashew nuts as well as pearls and precious and semi-precious stones. The country's comfortable food situation enabled foodgrains imports to be brought down from Rs. 1420 million to Rs. 86 million, in the corresponding periods. Imports of raw cashew nuts were also reduced to Rs. 94 million from Rs. 173 million. Imports of raw cotton, iron and steel, crude petroleum and petroleum products, non-ferrous metals, chemicals, elements and compounds, fertilizers, machinery and transport equipment recorded an increase. The rise in imports of iron and steel and raw cotton were due to the short fall in domestic production.

During the period reviewed imports from Asia and Western Europe has increased while that of America and East Europe declined. India's imports from ECAFE region increased by 48 per cent to Rs. 3262 million during January-August 1971 over the corresponding period of 1970. There was a rise in imports from Japan, Iran and Thailand. Imports from Western Europe increased by 46 per cent to Rs. 3092 million.

In respect of the European Economic Community countries imports at Rs. 1577 million recorded an increase of Rs. 400 million while U.K.'s supplies rose by Rs. 559 million at Rs. 1265 million. Higher imports of machinery and iron and steel increased the value of India's import bill from these countries. Imports from U.S.A. declined by Rs. 245 million to Rs. 3528 million mainly on account of much reduced imports of wheat. Overall purchases from African continent declined by Rs. 153 million mainly due to a fall in the imports from Congo and Tunisia. In respect of East European countries India's imports went down by Rs. 200 million to Rs. 1520 million. All East European countries excepting Poland, Bulgaria, Yugoslavia registered decline in supplies.

SCIENTIFIC RESEARCH AND PRODUCT DEVELOPMENT

VELVET FROM LEATHER REFUSE

The Central Leather Research Institute, Madras has developed a new process to convert rejected goat and sheep leathers into velvet fabrics which offer better protection against cold. These leathers can even be used for making kurtas and lungis. Finished leathers appear like velvet fabrics and have the softness of woollen shawls. The Madras Institute has also discovered a new method for printing suedes with dyes that are fast to washing and cleaning. The method involves a special finished treatment. Earlier the

Research Institute developed a process for producing leather boards from chrome tanned shavings and trimmings. Leather board so developed can be profitably utilised in making insoles, counters etc. in the footwear industry as also for making inexpensive products like cycle tool box, book covers etc.

FOCIMETER

Focimeter is an instument used for the measurement of vertex power, prismatic diopter, and location of astigmatic axis of spectacle lenses. The vertex dioptric power can be read directly on a drum in the range of + 20 to — 20 dioptric. A series of concentric circles in the eye-piece reticle enable measurement of prismatic dioptric power in the range of 0 to 7. It can be of aid to the opthomologists in dispensing eye glasses according to prescription.

A prototype instrument using all indigenous components has been fabricated at the Central Scientific Instrument Organisation, Chandigarh, and its performance tested at the Post Graduate Institute of Medicine, Chandigarh. Focimeters are not known to be produced in the country and the present demand is being met through imports.

The main raw materials are aluminium alloys, brass and optical glasses. All these are available indigenously. The graticules used in the instrument are the most important accessories. The cost of production would be dependent on the number of instruments produced.

PRISMATIC BINOCULAR

The know-how for making Prismatic Binoculars has been developed at the Central Scientific Instrument Organisation, Chandigarh. The instrument is a hand held prismatic binocular of individual focussing type and a maginification of 6 x with objective clear aperture of 33 mm. The field of view is 415 ft. at 3,000 ft. The dioptric scale adjustments have also been provided. The instrument is specically intended for civilian use.

Prismatic binocular for civilian use is not being made in the country at present and the present demand is being mainly met through imports.

The prototype instument have been checked by various observers at the Institute and its performance has been found satisfactory. The main raw materials involved are aluminium alloys, brass and optical glasses. All these are available indigenously. The minimum economic unit suggested is of the capacity of 1,000 pieces per annum, and the cost of production is expected to be Rs. 250 per piece.

AXLES FOR DEFENCE TRUCKS DEVELOPED

By producing the first indigenous dead axle for the defence truck 'Shaktiman,' M/s. Bharat Forge Company Ltd. Poona achieved success in import substitution.

A complex and sophisticated forging, the dead axle for the defence trucks is manufactured by only two other firms in the world. Over the last six years the company has developed know-how and capacity to manufacture closed die forgings also weighing from a few grams to over 300 kg.

INSTRUMENTS INDUSTRY

Incorporating the modern trends of development, the instruments industry is well established in the country and turns out a wide variety. The production range covers such items as scientific, optical, surveying and mathematical instruments, industrial process control instruments, water meters, house service meters, electrial recording and measuring instruments, x-ray and electro-medical equipment, medical and surgical equipment, photographic and photocopying equipment and components like industrial jewels, electrical bimetal contacts etc. The total turnover by the industry is around Rs. 400 million.

Industrial Process and Control Instruments

Production of industrial process control instruments registered a 140 per cent increase between 1968 and 1970. From Rs. 24 million worth in 1968 output rose to Rs. 32.3 million in 1969 and to Rs. 57.2 million in 1970. Maintaining this uptrend, production by the 9 large scale units in the line is estimated at Rs. 67.68 million in 1971. The installed capacity in this sector, is of the order of Rs. 129.2 million. Quantitatively the 1971 production is placed around 2.1 million numbers.

Industrial process control instruments are used in the process industries like petro-chemical, petroleum, fertilizer, steel, cement, power station etc. to measure different parameters like flow, temperature pressure and so on.

A high percentage of indigenous content has been achieved in this industry. M/s. Instrumentation Ltd. Kota has made good headway in substituting imported components with indigenous ones with the help of the progress made in research and product development.

Commencing its commercial production in 1968 the plant manufactures transmitters (thermocouples and thermometers), magenetoelectric instruments and panels and control desks.

The factory produced a large number of instruments valued at Rs. 37.5 million in 1970-71. It is expected to reach full licensed capacity of about Rs. 110 million per annum by about 1975. The unit is making 80 different products as against 9 products, intended initially.

By way of diversification M/s. Instrumentation will soon be taking up the production of pneumatic instruments.

The other units engaged in the line have reached their full production capacity.

Scientific, Optical, Surveying and Mathematical Instruments

With 12 units in the organised sector and an installed capacity of Rs. 37.5 million, the actual outturn of scientific, optical, surveying instruments etc. in 1971 is estimated at Rs. 24.14 million. In the previous two years (1969 and 1970) production was of the order of Rs. 24.96 million and Rs. 25.68 million.

The National Instruments Ltd., Calcutta engaged in the manufacture of various types of surveying, meterological, scientific and industrial instruments has considerable contribution to the production in the line. The output by this unit in 1970 was around Rs. 6 million worth. In addition to the general purpose scientific and surveying instruments the Culcutta factory has also undertaken the manufacture of some of the sophistieated defence instruments. Prototypes have been manufactured and commerical production is likely to start soon.

Besides the organised sector, a number of small scale units are engaged in the production of a wide variety of scientific instruments.

X-Ray and Electro Medical Equipment

The production of X-ray and electro medical equipment has gone up from Rs. 12.14 million in 1969 to Rs. 15.08 million in 1970 and an estimated figure of Rs. 25.47 million in 1971. The installed capacity too increased from Rs. 26.5 million in 1970 to Rs. 31.5 million in 1971.

X-ray equipment up to and inclusive of 500 M.A. capacity is being produced in the country. Electro medical equipment such as surgical dia-thermy, electro cardiograph single channel both A.C. and D.C. are also being manufactured in the country. M/s. Bharat Electronics Ltd. Bangalore has gone into the production of X-ray tubes a component of X-ray machine. The production value of the unit of this item was around Rs. 2.5 million in 1971.

The number of units in the production line has increased from 5 in 1970 to 6 in 1971. A new unit has gone into production of ECG paper for using in ECG machines from October 1971. The unit is expected to reach soon its full capacity of 400,000 rolls in one shift. It has also provision for doubling production when needed.

Medical and Surgical Instruments

Registering a steady growth, production of medical and surgical instruments went up from Rs. 7.63 million in 1969 to Rs. 11.37 million in 1970 and to about Rs. 16.23 million in 1971. The installed capacity too went up from Rs. 30 million in 1969 and 1970 to Rs. 35 million in 1971. Quantitatively the output increased from 4.5 million instruments in 1970 to an estimated 6.5

million instruments in 1971. A new unit has been set up in 1971 for manufacture of blood transfusion and infusion equipment. The new unit has a production capacity of Rs. 5 million worth. With the addition of this unit there are 8 large scale manufacturers in the production stream.

Photographic and Photocopying equipment

This sector is also gradually picking up in production outturn. From Rs. 2.6 million in 1969, value of output increased to Rs. 3.9 million in 1970 and to a further figure of about Rs. 4.7 million in 1971.

In addition to the ammonia type of photo-copying machine a new type of zerographic machine developed by the National Physical Laboratory, New Delhi has been put on the production stream in 1971. The machine uses dry process and can take copies on ordinary paper and copy documents printed on both sides. Besides general types of cameras, a Baroda firm has taken up production of cameras for export purposes.

The installed capacity of the industry has gone up from Rs. 4.5 million in 1970 to Rs. 6.3 million in 1971.

Electrical Measuring Instruments

With 9 units in production, the 1971 output of electrical measuring instruments is estimated to be of the order of Rs. 23.6 million. The actual production by the 8 units in the field in 1969 and 1970 were Rs. 14.67 million and Rs. 13.64 million respectively. With the addition of a unit the installed capacity has risen to Rs. 26.5 million in 1971 from Rs. 25.0 million in 1970.

Diversifying the production range, one of the manufacturing units has added moving coil instruments to the production stream. Another firm has developed trivectometer utilising indigenous knowhow and it is expected to be taken up for regular production during the current year.

Along with the rise in production, the import content for these instruments has also been considerably reduced. At present on an average the import content is less than 10 per cent of the c.i.f. value.

The industry is meeting the entire indigenous demand and imports are limited to a few specialised types of instruments.

House Service Meters

Production of the house service meter industry both single phase and poly phase, has gone up during the year 1971. The total production estimated in 1971 is 2.2 million numbers of single phase and 645,000 numbers of polyphase meters as compared to 1.84 million numbers of single phase and 570,000 numbers of polyphase meters turned out in 1970. The installed capacity of the 15 manufacturing units is 1.63 million single phase and 430,000 polyphase meters.

Water Meters

The 6 units engaged in the production of water meters increased their output from 124,000 numbers in numbers 1969 to 160,000 numbers in 1970, and to about 165,000 numbers in 1971. Water meters varying from 1/2" to 24" capacity are being produced by the industry.

Components

To obviate the necessity to depend on the import of components by the instruments industry, establishment of production capacity has been taken up. Manufature of industrial jewels and bimetal contact has been established in the country. Different types of jewels required by the meter induustry has been taken up for production by a Bombay unit. The production capacity is about Rs. 5 million worth. The actual production in 1971 was around 5300 pieces. A letter of intent has been issed to the firm for 55 million pieces, of which a good portion is likely to be put on export stream. Similarly with a capacity of Rs. 5 million, the quantity of bimetal contacts turned out in 1971 was around 42,600 numbers plus 7700 kg. at an estimated value of Rs. 6.53 million.

Raw Materials and Import Substitution

The main raw materials used in the instruments industry are CRCA sheets, stainless steel wires, silicon steel sheets, stainless steel tubes, stainless steel sheets, non-ferrous metals like copper, zinc, tin and lead and others such as platinum and palladium. Substitution in a big way for these raw materials is considered not possible at present. However, the industry has taken up the substitution of finished accessories in the end product. During the year 1971 the substitution has been done to the extent of Rs. 4.6 million by such indigenous items as X-ray tubes, ECG papers, intensifying and fluoroscopic tubes and disc and rolled charts.

Export Trade

Scientific, medical, optical, measuring and controlling instruments are active in the export trade and improved their performance by Rs. 5.61 million (nearly 65 per cent) in 1970-71 as compared to 1969-70. The export supplies in these two years stood at Rs. 14.22 million and Rs. 8.61 million. The export uptrend continued in 1971-72 also as witnessed by the export income in the first six months (April-September 1971) which was of the value of Rs. 7.72 million as against Rs. 4.67 million in the corresponding period of 1970-71.

In 1970-71 export of optical elements, instruments including spectacles amounted to Rs. 3.37 million while photo and cine apparatus and accessories brought in Rs. 1.11 million. Overseas supplies of medical and surgical instruments were of the order of Rs. 4.53 million. Meters, counters, measuring controlling and other instruments had a share of Rs. 5.21 million.

Optical instruments, spectacle etc. were popular in such markets as U.S.S.R., U.K., Sudan, Yugoslavia, Federal Republic of Germany and Ireland. The main destinations for photographic and cine apparatus were Bolivia, Federal Republic of Germany, Thailand, Afghanistan, Belgium, Dubai, Venzeuela and Nepal. The important market for medical and surgical instruments was U.S.S.R. (Rs. 2.91 million). Other countries like Nepal, Nigeria, Iraq, A.R.E., Indonesia, Kenya, Sudan and U.K. too imported medical and surgical instruments from India in considerable quantities. For meters, counters, measuring and controlling instruments the main purchasers were Canada, U.S.A., U.K., Yugoslavia, Iran, New Zealand, A.R.E., Thailand and Vietnam Republic.

To the country's export effort in the field, the small scale industrial units have considerable contribution. That these units are now able to compete in global tenders and successfully execute export orders is a testimony to their ability to turn out products of international standards at competitive prices. ☐

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EXPORT BUSINESS IN LATHES

Automatic capstan and turret lathes have earned in foreign exchange Rs. 5.95 million in the first half of 1971-72 (April-September 1971). Centre lathes alone netted Rs. 1.84 million and were mainly exported to Australia, New Zealand and Netherlands.

U.S.A. have placed an order for the supply of turret lathes worth Rs. 1.2 million on M/s. Industrial Plants Ltd., 103-C, Block F, New Alipore, Calcutta-53. The firm has also received enquiries from several other markets including Canada, Federal Republic of Germany, Yugoslavia, U.K. and Thailand for supply of machine tools worth an additional Rs. 1.2 million. In view of the special requirements of the foreign markets particularly the United States, the firm proposes to modify the design of their products to suit the electrical and other technical specifications demanded for. Having been in the export business for the last three years the Calcutta firm has spare production capacity to meet the additional export order of the value of nearly Rs. 1 million.

OVERSEAS DEMAND FOR MARINE PRODUCTS

Compared to Rs. 149.66 million worth of exports during the corresponding period of 1970-71, marine products of India registered improvement at Rs. 154.04 million during the first half of 1971-72 (April-September 1971). A wide variety of fish in fresh, simply preserved, chilled or frozen, canned or dried forms is available for export. The varieties of fish that are active in the export markets are prawns and shrimps, lobster tails, frog legs, pomfrets etc.

M/s. XL Sea Foods, Box No. 846, Cochin-5, have standing orders from the U.S.A., U.K., West Germany and Japanese markets for continuous export of frozen shrimps and canned shrimps. For the supply of the same products they have also received enquiries from other markets like Canada, Hong Kong, Singapore etc. Among their other export products are frog legs and lobster tails.

NOVELTIES FOR EXPORT

A wide range of novelty manufactures-cuff links, tie tacks, tie pins, bangles, rings, leather waist belts, wallets and garments is marketed abroad by M/s. Pahlaj Bajaj & Co. (Novelties) Pvt. Ltd., Sir Pheroz Shah Mehta Road, Fort, Bombay. The firm has booked firm orders from U.S.S.R., Czechoslovakia, Yugoslavia, Bulgaria and Canada for export of these and other novelties at a value of Rs. 1.8 million and the export supplies are to be completed by the end of April 1972. They continuously produce new designs of their products to meet the challenging requirements of foreign consumers. The firm has sufficient additional capacity to export 100,000 cuff link sets and 20,000 belts per year. They have also plans to set up an additional project for wallets to manufacture two million numbers per annum for export valued at Rs. 20 million. They can right now book export orders for wallets at the rate of 50,000 numbers per month for delivery from January 1973.

AWARD TO INDIAN BISCUIT MANUFACTURER

A manufacturer of biscuits—the first Indian food company to win the distinction—has been awarded two gold medals at the Monde (World) Selection held at Brussels recently. These gold medals were awarded for their Monaco and Cheeslings biscuits against international competition for their quality, test, packaging and purity of ingredients. This significant achievement establishes effectively that Indian biscuits are comparable to the world's best because the World Selection Awards mean international recognition of quality. The manufacturers of these biscuits are M/s. Parle Products Mfg. Co. Limited, Graham Road, Ballard Estate Bombay and they are exporting these biscuits to foreign countries.

Exports of biscuits from India amounted to nearly 763 tonnes valued at Rs. 2.9 million during the fiscal year 1970-71. The major importers of biscuits from India were Bahrain Is., Dubai, Nepal, People's Republic of S. Yemen, Muscat, Qatar, Thailand, Seychelles, Ghana and Ethiopia. Biscuits were also exported to Hong Kong, Kuwait, Malaysia, Mauritius, Saudi Arabia, Abu Dhabi, the Federal Republic of Germany and Somalia among other countries. During the period April-September 1971, the quantity of biscuits exported was 762.5 tonnes for a value of Rs. 2.5 million. This reveals an increasing trend.

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AGREEMENT ON COFFEE SALES WITH SOVIET UNION

India has signed recently an Agreement with the Soviet Union for a direct sale of 3,000 tonnes of robusta cherry coffee worth Rs. 14.5 million. The deal has been signed by the Coffee Board, Vidhana Vidhi, Bangalore. The Chairman of the Board expressed that another agreement with the Soviet Union for 2,000 tonnes would be possible.

The Board has sold a record quantity of 41,500 tonnes of coffee during 1971-72.

The Soviet Union appears to have proposed to the Indian Government that it should be possible for the Coffee Board to deal directly with them in respect of the coffee sales, amounting to 15,000 tonnes annually.

EXPORT OF PESTICIDES

Indian industry is well established in the export field of pesticides. M/s. Excel Industries, 184/87, Swami Vivekanand Road, Bombay a single manufacturer in the country in the line have secured nearly Rs. 0.6 million in foreign exchange through their overseas sales of pesticides products. With their new phosphorous plant in production it is expected that their export will pick up better in the following year.

The company manufactures a wide range of industrial and agricultural chemicals. On its two factories in Bombay they have continuously varied and diversified their product range to meet domestic and foreign requirements. The present variety of products manufactured by them include organo mercurials, rodenticides, insecticides, fumigants, mercury salts, copper salts, elemental phosphorous, phosphorous compounds, chlorinated paraffin wax, aluminium chloride anhydrous, oxalic acid and liquid sulphur dioxide. Several of the company's products are being manufactured for the first time in India and the process and technical know-how have been developed and perfected by the company's technicians and engineers. The company expects to export in the near future one of their pesticides products to the U.S. market also.

SPOT ORDERS FOR COIR ITEMS

The Soviet Trade Delegation that has visited Kerala recently have placed spot orders with various exporters of coir goods for supply of coir mattings worth Rs. 5 million, it is learnt. This includes orders worth Rs. 1.45 million received by the Kerala State Coir Corporation. The remaining order have been shared among three cooperative societies and private exporters.

EXPORT SCOPE OF SPECTACLE FRAMES

India produces over 7 million spectacle frames annually. The export value is of the order of Rs. 3.5 million.

In the first six months of 1971-72 (April-September 1971) India's export value of spectacle frames was of the order of 1.54 million (174,000 numbers). Of this, plastic spectacle frames alone earned Rs. 1.16 million. They were mainly supplied to U.S.S.R., U.K., Sudan, Yugoslavia, German Federal Republic and Ireland.

A representative of the West German opticals firm, M/s. Ferdinand Menrad Brillenfabrik, who was recently on a visit to Madras stated that the spectacle frames made in India were of "surprisingly good" quality. With some more sophisticated machinery and technology; more of these frames can be absorbed in the export markets, he said. The German Firm concluded a technical collaboration agreement with M/s. Elite Opticals, Madras under which many new processes for production of celluloid and metal or combination frames were made available to the Madras factory. The firm which is a prominent exporter in the line exports both to East and West German markets.

CHEMICALS IMPROVE IN EXPORT TRADE

Export value of chemicals improved to Rs. 167.06 million in the first half of 1971-72 (April-September 1971) as compared to Rs. 155.86 million in the corresponding period of 1970-71.

Chemical elements and compounds fetched Rs. 41 million as against Rs. 26.65 million in the comparable periods. Export earnings of organic chemicals more than doubled to over Rs. 20 million from Rs. 10 million while those of inorganic chemicals, elements, oxides and halogen salts too improved to Rs. 10.79 million as against Rs. 6.64 million.

Medical and pharmaceutical products have also fared better in the export market in the period under review at Rs. 48.98 million as against Rs. 41.24 million. Essential oils and perfumed materials including toilets, polish and cleaning preparations have also registered growth at Rs. 43.18 million from Rs. 33.98 million.

AID MEMOIRE TO U.K. ON ADOPTION OF GSP

India has rejected the suggestions made by the U.K. Government that the adoption of Generalised Scheme of Preferences (GSP), for imports from developing countries could be a compensation to the loss of India's existing trading advantage after Britain's entry into the European Economic Community. In an aid memoire handed over to the British authorities recently, the Indian Government expressed that the scope of GSP adopted by the Members of the Community was still not clear. Even if its implementation was taken into account, there were important areas of India's export trade where GSP was of uncertain advantage or of no benefit at all. The Indian aid-memoire pointed out that India has çonsistently large adverse balance of trade with the Community. On an average the Community's imports from India had been approximately half or even less of its exports to India.

The UNCTAD sponsored GSP was inteded to create satisfactory conditions of access for the products of all developing countries and was not related to the enlargement of the community.

The aid-memoire also pointed out that although the United Kingdom agreed to adopt the Community's GSP from 1974, the exact implications of it on India's trade were not yet known. Under the Scheme India would be sharing with other developing countries preferences which she now enjoyed in the British market on her export of approximately Rs. 530 million. As against this, EEC's offer under GSP provides for preferences to India of value of Rs. 240 million only. India has suggested that while fixing the ceilings to EEC imports under GSP, the unrestricted duty free and preferential entry now enjoyed by India be taken into account. Also features of U.K.'s GSP which were more beneficial to the developing countries should be adopted by the enlarged community so that items like jute and coir manufactures which were now subjected to bilaterial arrangements between exporting and importing countries could be included. ' The enlarged community should provide for these goods, duty free entry without any restrictive predetermined ceilings

With regard to jute India has stated that she might be placed at double disadvantage with Britain's entry to the Common market. While imports into United Kingdom where India now had free entry would be subject to quantitative restrictions, no such restrictions would apply to E.E.C. member states. Thus India's competitive position in export of this item would suffer. If timely arrangements were not worked out for more liberal entry of this product into the enlarged community, the trend towards substitution by synthetics was bound to be accelerated. India's tobacco exports which now account for over fifteen per cent of Britain's imports might also suffer.

Calling for early negotiations for comprehensive agreement, the aide memoire said that there was now no interim arrangement between Britain and Asian Commonwealth countries including India on lines such as that what U. K. has with the African, Pacific and Caribbean Commonwealth countries for continuing the present concessions till January 31, 1975.

TRADE AND AID

EXPORT STRATEGY OF DEVELOPING COUNTRIES

"The expansion of EEC will result in a reduction of the export prospects for developing countries to that region because of increased competition from the newly admitted members of the EEC. Gradually, almost the entire Western Europe may get integrated and thereby make it increasingly difficult for the developing countries to have their legitimate share in the European market", warned India's Minister for Company Affairs, in an adress to the participants of International Programme on Trade Policy and Export Promotion at the Indian Institute of Foreign Trade. This process of EEC's expansion, he said, threatened to dilute and eventually nullify the concessions they have offered to developing countries under the Generalised System of Preferences (GSP). He hoped that UNCTAD III would pay special attention to this problem and evolve measures not only to arrest this disconcerting trend but also to ensure the realisation of the goal of unrestricted and dutyfree access to the markets of all the developed countries for all manufactures and semi-manufactures from all the developing countries.

The decade of 'sixties, witnessed a boom in world trade but recorded unfortunately a continuous decline in the share of developing countries in world exports from 21.3 per cent in 1960 to 18.1 per cent in 1969 and to 17.6 per cent in 1970. Had the developing countries maintained their share from 1960 to 1969, they would have cumulatively earned an additional amount of $ 40 billion. The First Development Decade, thus turned out to be a decade of development for developed countries and one of frustration for the developing ones. The "Concerted Declaration" adopted at the conclution of UNCTAD II, the Lusaka Declaration of September 1970 on Non-alignment and Economic Progress and the Lima Declaration, all of which laid emphasis on trade expansion, economic cooperation and regional integration among the developing countries are landmarks in this conncetion.

VEGETABLE OILS AND OVERSEAS SALES

Export trade in fixed vegetable oils and fats was higher at Rs. 36.32 million during the first half of 1971-72 as compared to Rs. 25.80 million in the same period of the preceding year.

Mustard oils including rape and colza were supplied to Nepal at a value of Rs. 2.17 million in the period reviewd during 1971-72. Castor oil was exported to the tune of Rs. 30 million mainly to U.S.S.R. (Rs. 23 million) Czecholsovakia (Rs. 3.86 million) and German Democratic Republic (Rs. 2.46 million) and cashew shell oils earned Rs. 3.78 million with Japan as the leading buyer (Rs. 1.8 million) followed by the U.K. (Rs. 1.6 million).

LEATHER PRODUCTS EXPORT CROSS TARGET

The export earnings of leather products have crossed Rs. 500 million even in the first eleven months of 1971-72 (April 71, February 1972) against a target of Rs. 470 million set for the entire financial year. Export target has been achieved well ahead of schedule despite severe competition from other exporting countries and syntheties as also limitations in securing raw materials, tanning chemicals and machinery, according to the Leather Export Promotion Council, Madras.

In the period reviewed the export value of goat skins was of the order of Rs. 248.81 million as compared to Rs. 177.27 million earned in the corresponding period of 1970-71. Sheep skins earned Rs. 156.35 million against Rs. 124.46 million. The quantum of goatskins exported improved to 7 million kg. as against 5.35 million kg. sheepskins rose to 3.7 million kg. from 3.2 million kg.

Cow hides and kips also earned more at a level of Rs. 58.5 million (5.67 million) kg. as compared to Rs. 49.5 million (5.33 million kg.). Buffalo calf skins secured Rs. 29.64 million (2.11 million kg.) against Rs. 24.75 million (1.78 million kg.), cow calf skins earned Rs. 17.54 million (1.07 million kg.) as opposed to Rs. 16.66 million (1.08 million kg.). Buffalo hides have almost trebled their export value at a level of Rs. 3.49 million (0.35 million kg.) against Rs. 1.23 million (0.15 million kg.).

Snake skin export, however, were nearly a little over 50 per cent of the preceding year's export effort of 2.5 million numbers. The decline in this category was due to fashion changes in the importing countries.

EXPORT TREND IN TOBACCO

The export value of unmanufactured tobacco during the first eleven months of 1971-72 (ending February 1972) was of the order of Rs. 391.20 million. The quantum exported was about 52 million kg. The most important purchaser in the period was U.S.S.R. whose import value was Rs. 150.30 million (18.92 million kg.). The next important buyer was U.K. with an intake value of Rs. 144.24 million (16.04 million kg.). Japan imported worth Rs. 39.68 million while the Irish Republic Rs. 11.80 million. The Arab Republic of Egypt imported the tobacco at a value of Rs. 7.6 million, Czechoslovakia, Rs. 5.73 million, Somalia Rs. 4.8 million, German Democratic Republic Rs. 3.29 million, Libya Rs. 3.8 million, Singapore Rs. 3 million and Netherlands Rs. 2.6 million.

The export value of tobacco products in the same period of 1971-72 has been estimated at Rs. 25 million by the Tobacco Export Promotion Council (123, Mount Road, Madras-6). Productwise, cigarettes earned Rs. 20.19 million, hukka tobacco Rs. 0.68 million, bidis Rs. 0.63 million and snuff Rs. 0.23 million.

FOREIGN DEMAND FOR TEXTILE PRODUCTS ON RISE

The entire group of textiles including textile yarn, fabric, made-up articles and related products improved its export earnings to Rs. 2060 million in the first half of 1971-72 as against Rs. 1508 million in the same period of 1970-71.

Jute manufactures including twist and yarn constitute the major area where a substantial export growth cannot but be noticed. This group fetched as much as Rs. 1342 million as compared to Rs. 752 million. In this group, carpet backing cloth earned Rs. 506.27 million in the period reviewed during 1971-72, with U.S.A. having absorbed Rs. 391 million worth of this cloth. Other hessian cloth fetched Rs. 477 million while jute hessian bags Rs. 131 million, jute sacking bags Rs. 122.6 million, jute wool sacks Rs. 14.76 million, jute tarpaulins Rs. 14.48 million, sacking cloth Rs. 6.4 million, jute canvas Rs. 1.28 million, narrow fabrics Rs. 5.7 million and cordage, cables rope and twine of jute Rs. 1.7 million.

Cotton manufactures excluding yarn and thread and clothing maintained their export market in the first half of 1971-72 at Rs. 428.8 million as against Rs. 427.07 million in the corrosponding period of the preceding year. Woven fabrics, other than cotton and jute fabrics fetched Rs. 72.58 million as against Rs. 57.72 million. In respect of floor coverings and tapestries other than of cotton and jute fetched Rs. 96 million as against Rs. 77.8 million. There has however been a marginal fall in the export value of tulle, lace, embroidery, trimmings and other small wares, textile yarn and thread and special textile fabrics except cotton and jute.

ECONOMIC GROWTH AND INDUSTRIAL PROGRESS

TOWARDS SELF-RELIANCE

A progressively diminishing dependence on aid has been one of the major objectives of development planning in India. Near-complete independence from net external financing by the end of the present decade is one of the explicit goals set out in the Fourth Five-Year Plan. While recent years witnessed conscious plans to reduce dependence on external assistance, unilateral suspensions of a part of the commitments for economic assistance in the wake of hostilities in December last has further intensified the national urge to do without external aid.

There has been a continous decline in the utilisation of external assistance during the past four years. The decline can be partly attributed to the shrinkage in food imports under the PL 480 account as a result of the rapidly improving food production in the country. The Government had already announced its decision not to import any food on a concessional basis after 1971-72. Even excluding concessional food imports, the utilisation of net assistance has come down over the last four years (1968-69 and 1971-72) by almost Rs. 3000 million i.e. by more than one half.

Fresh commitments of assistance have been consistently lower than the utilisation of assistance during the four-year period. This is so because of the time lag between commitments and disbursements. In all, the assistance in the pipeline fell from a level of Rs. 19,880 million at the end of March, 1968 to Rs. 15,700 million at the end of March 1971.

Debt servicing on the other hand has been increasing continuously: from Rs. 1430 million in 1961-62 to Rs. 3,330 million in 1967-68 and Rs. 4,500 million in 1970-71. The burden in 1971-72 is also likely to continue to be at the previous year's level. The peak is expected to reach in 1972-73 and the following year and roughly 30 per cent of the country's annual export earnings will be used towards the servicing of past debt obligations. Taking debt servicing into account, net flow of foreign assistance into the economy has declined from Rs. 8,630 million in 1967-68 to Rs. 3,410 million in 1970-71.

The actual contribution of foreign assistance to the financing of economic development in India has thus been markedly small in recent years. Until 1964-65 net external accommodation worked out to 3 per cent of national income; it is now less than 1 per cent. Net foreign accommodation used to account for 25 per cent of investments in the economy in the early 1960s; in recent years the contribution of net foreign assistance to domestic investment has declined to 13 per cent. Over the period of the Fourth Plan it is estimated that it will account for only 8 per cent of aggregate investments.

CURRENT POSITION OF FOREIGN EXCHANGE RESERVES IN INDIA

In the financial year 1971-72 the position of the foreign exchange reserves in India has been moderately comfortable. A marked improvement occurred in April and May 1971 when foreign exchange reserves advanced by Rs. 570 million. A decline was witnessed during the next three months to be followed by a sharp rise once more in October. Some appreciation in the rupee value of reserves took place following the recent alignment of exchange rates. Over the first 10 months of 1971-72 the foreign exchange reserves thus on the whole have shown an increase of Rs. 676 million. India has received a third allocation from the International Monetary Fund of SDRs worth Rs. 747 million in January 1972. Including these, the foreign exchange reserves amounted to Rs. 8750 million at the end of January 1972.

Allocation of Special Drawing Rights constitute a useful condition to India's liquid reserve assets. During 1969-70 and 1970-71 the SDRs worth Rs. 1700 million ($ 266 million) were allotted to India. Of these, SDRs amounting to Rs. 895 million were utilised for the payments and servicing of outstanding debt obligations to IMF. In view of the improvement in the balance of payments in recent years, India was designated by the IMF for acceptance of SDRs against convertible currencies. Such acceptances amounted to Rs. 306 million ($ 40.8 million). India has, therefore, so far used SDRs in meeting her external payment obligations only to the tune of Rs. 589 million. With the third allocation of Rs. 747 million received in January 1972, net holdings of SDRs by India have been raised to Rs. 1858 million.

INDIAN ECONOMY
A SURVEY

The Indian economy witnessed difficult developments during 1971-72 such as the tension across the borders, the influx of nearly 10 million refugees and the outbreak of hostilities in December 1971. Despite these difficulties and the resultant fiscal burden, the economy responded well to the challenge.

The economy continued to grow during 1971-72, though at a pace lower than envisaged in the Fourth Five-Year Plan. The growth of national income which was somewhat less than the Plan target of 5.5 per cent in 1969-70 is estimated to be a little less than 5 per cent in the following year. The output of foodgrains has been increasing sharply – thus serving to raise the overall rate of growth of agricultural production despite uneven performance of commercial crops. In the industrial sector, however, there has been a slowing down in the growth of production since May 1970. The rate of industrial growth in the organised sector was only about 3.7 per cent in 1970-71 as against 6.8

per cent in 1969-70. In contrast, agricultural production in the year rose by as much as 6.7 per cent. In 1971-72, industrial output in the organised sector is envisaged to grow by about 4 per cent.

The Government of India's ECONOMIC SURVEY OF INDIA (1971-72), reveals that national income at constant prices at an estimated 4 per cent more than in 1970-71 when the growth rate was 4.7 per cent as compared to the preceding year. The rate of growth in agricultural production in 1971-72 has been estimated at 3.8 per cent while in the previous year it was 6.7 per cent. In respect of industrial production 1971-72 growth rate over the preceding year is estimated at 4 per cent as compared to the growth rate of 3.7 per cent in 1970-71, which was 6.8 per cent in 1969-70.

In the agricultural sector, the output of foodgrains in 1970-71 was 107.8 million tonnes. As a consequence, stocks of foodgrains are at a considerably higher level than the year before. At the end of December 1971, foodgrain stocks stood at 7.9 million tonnes - 2.5 million tonnes higher than at the end of 1970. While the production of all cereals (other than jowar) has increased, the output of pulses was however marginally lower in 1970-71 than in the preceding year.

The production of commercial crops has not been too satisfactory. Cotton and jute suffered decline in output in 1970-71 and so also the sugar crop. The output of other major raw materials namely oilseeds had however recovered from the low level of 1968-69 although production is not yet able to meet fully the demand which is rising rapidly. A more favourable picture is presented by the plantation crops of which coffee and rubber registered record outputs. The production of tea is rising relatively slowly.

In 1971-72, the output of cotton is expected to rise by about 15 per cent; that of jute and mesta would also have been larger but for the floods that affected the crop in West Bengal. The production oilseeds would be less than in 1970-71. The output of tea will be higher marginally.

In the industrial sector, the output of consumer goods manufacturing sector recorded an increase of 6.4 per cent in 1970 as against a rise of 10.8 per cent in 1969. By and large, the performance of the manufacturing sector producing intermediate inputs was better than that of the industries engaged in producing final goods of consumption. The output for instance was higher in industries producing chemicals (8.6 per cent more), paper and paper products (7.4 per cent), synthetic fibres (3.4 per cent) and non-metallic mineral products (8 per cent). For fertilizers, the rate of growth in 1970 at 19.8 per cent though lower than the rate of growth of 24.3 per cent achieved in the previous year is noteworthy. The rate of increase in the output of petroleum products in that year was less than in the previous year largely due to a slackening in the pace of demand for refined petroleum products.

In the case of capital goods, appreciable increase in output took place in 1970. The production of power transformers, for example, rose by 40.6 per cent as against a mere 4.6 per cent rise in 1969. In respect of electric motors, the rate of increase in output went up by 8.7 per cent in 1969 to 34.5 per cent in 1970. The production of automobiles too increased substantially and so was the case with industrial machinery. The major industries contributing to the relatively low rate of industrial growth in 1971 however were textiles, iron and steel, other basic material including metal production, non-electric machinery and other equipment.

Strains on the economy's external payments position began to develop in 1970-71. Foreign exchange reserves which, over the preceding three years rose by an annual average of Rs. 1140 million, were drawn down to the extent of Rs. 890 million during the year. The decline in the gold and foreign exchange reserves was even steeper, the holdings of reserve assets other than SDRs falling by as much as Rs. 1080 million.

A sharp rising in payments of debts to the International Monetary Fund and a rise in debt service charges accompanied by the slightly smaller level of inflow of external assistance were the principal factors contributing to the worsening of the balance of payments.

A sizeable amount to foreign exchange resources had been used up in the process of liquidating India's shortterm indebtedness to the IMF, to which were added a further outgo involved in the payment of the gold portion of the increase in the country's quota with the Fund. The payments made to the IMF during 1970-71 absorbed foreign exchange resources and SDRs worth Rs. 1763 million of which as much as Rs. 994 million consisted of free foreign exchange. With the liquidation of all outstanding indebtedness to the IMF which was as high as Rs. 3806 millions($ 507.5 million) in December 1967 and the increase in the Fund quota, Indian economy's international liquidity position has been considerably strengthened.

THE BUDGET FOR 1972-73

"Despite the extraordinary stresses and strains which were compounded by natural calamities over many parts of the country, it should be possible to end the current fiscal year with our foreign exchange reserves more than intact, Government stocks of foodgrains of nearly 8 million tonnes, the general price level reasonably stable and a deficit in the Central Budget significantly lower than what one might have apprehended", stated India's Finance Minister while presenting the Budget for the year 1972-73 to the National Parliament. He cautioned, however, that "while the resilience and strength displayed by the Indian economy can give us confidence, there is little room for complacency".

The rate of growth of the economy has slackened in 1971-72. To some extent, this is understandable as the high rate of growth in the production of major cereals in earlier years cannot be continued year after year. But this trend should be conterbalanced by an increase in the growth rate of pulses, commercial crops and industry at large. While many of the basic industries, notably steel and fertiliser, are operating well below capacity and shortage of agricultural raw materials has affected important consumer goods industries such as textiles, sugar and vegetable oils, there are encouraging signs in that many capital goods industries and those producing important intermediate products have their order books full and are maintaining a satisfactory rate of growth in production.

Referring to the problems such as the appreciably widening trade gap and inadequate level of savings and investment in both the public and private sector to sustain a satisfactory rate of growth, the Finance Minister stated, that such a situation must be rapidly transformed if the objective of growth with social justice and self-reliance were to be realised soon.

The main feature of the Budget for 1972-73 is the substantial increase in the outlay on the Plan. The budgetary provision for the Central Plan proper would be increased by Rs. 3320 million, or nearly 33 per cent. Inclusive of internal surplus and other extra-budgetary resources, the increase in the Central Plan works out to Rs. 4840 million or 27 per cent. Taking the Centre, the States and the Union Territories together, the total provision for the Plan for the year has been envisaged at Rs. 39,730 million as against Rs. 32,630 million in 1971-72. Despite the substantial increase in plan outlay and without any credit for mobilization of additional resources, the overall deficit in the Central Budget for 1972-73 is expected to be limited to Rs. 3750 million.

In respect of customs duties, the Minister recalled the imposition of a regulatory duty at the rate of 2.5 per cent *ad valorem* on most imported products and a higher duty of 10 per cent on a few selected items. In view of the need to exercise a general restraint on imports as well as the necessity to ensure the least disturbance to the simplification of the import tariff introduced last year, the Finance Minister proposed to apply 10 per cent *ad valorem* rate to all items which would pay a duty of 100 per cent or more as well as to the few selected items that were included in the 10 per cent list last December. A new rate of 5 per cent *ad valorem* will also apply to all items on which a duty of 60 per cent or more but less than 100 per cent would be payable. The remaining items will continue to bear a regulatory duty of 2.5 per cent, although those items which were totally exempted in the last Budget would continue to remain so.

MAN-MADE FIBRE INDUSTRY
A PROFILE

The Indian man-made fibre industry is of a recent origin. It is however keeping up a satisfactory tempo in production, despite limitations and the fact that the progress achieved by it within two decades is impressive enough to believe that it will gradually develop into even bigger dimensions.

With only two manufacturing units to begin with and an initial production of 2.5 million kg. per annum of viscose filament yarn, the country has by now reached creditable levels of production capacity and output.

Today there are 9 units engaged in the manufature of rayon and acetate filament yarn. There are two units producing rayon staple fibre with a production capacity exceeding 70,000 tonnes per annum. Additionally there are three units that are producing rayon tyre cord. In the field of synthetics, there are about 14 units licensed to manufacture synthetic filament, staple and tyre cord while proposals for capacity expansion are being pursued by about 10 units.

In 1970 the licensed capacity of viscose filament was of the order of 40,500 tonnes, and the actual production was 36,075 tonnes. The capacity licensed for viscose staple in that year was 26,000 tonnes while production was 63,342 tonnes, in respect of acetate, the licensed capacity was 5400 tonnes and the production 1959 tonnes. In the case of viscose tyre cord capacity was 18,800 tonnes and production 17,421 tonnes. In the year, the capacity and production were 16,540 tonnes and 9255 tonnes for nylon filment yarn, 24,400 tonnes and 5330 tonnes for polyester fibre, 4000 tonnes and 145 tonnes for acrylic fibre, 2400 tonnes and 605 tonnes for nylon tyre cord respectively. The total licensed capacity of both rayon and synthetic was thus 138,040 tonnes tonnes and the total production 134,135 tonnes.

With increase in the indigenous production of man-made fibres year after year India's import bill is being gradually reduced. On the fabric side the production is on the increase too and the present estimate is that this is close to 1000 million metres.

Additionally there are as many as 110,000 power looms working on artsilk fabrics and for the next five years installation of additional 40,000 power looms is envisaged. There are also nearly 400,000 handlooms producing both pure and mixed fibres. At present, there are approximately 350 warp knitting and 150 Raschel looms. For texturising, 25 to 30 false twist machines are also reported to be in operation. More than Rs. 2800 million have been invested in this industry and it directly employs over half a million people.

In the field of raw material production, there are at present three units licensed and are engaged in the manufacture of rayon grade wood pulp with an aggregate capacity of about 92,600 tonnes per annum. Good progress has been achieved in the production of wood pulp, based on indigenuously available raw materials such as bamboo, eucalyptus and cotton linters. With the sufficient forest resources in the country and the encouragement given to stimulate entrepreneurial activity the wood pulp production is likely to improve year after year.

With the establishment of huge petro-chemical complexes it is reasonable to assume that the raw material position as far as synthetic fibre industry is concerned would be adequate in the near future.

DEVELOPMENT OF OIL REFINING CAPACITY

The Indian economy has traversed a long way in attaining near self-sufficiency in petroleum refining. From Digboi in upper Assam where the first small-sized oil refinery went on stream in 1901, to the eleventh refinery for which the foundation was laid recently at Bongaigaon, the chain of oil refineries in the country has been strengthened from time to time. A couple of decades back, the production of petroleum products was of the order of 0.21 million tonnes (1950) while the same rose to as much as 17.17 million tonnes in 1970. Consumption level too increased from 3.32 million tonnes to 18.73 million tonnes in the comparable years. The import bill has gone down from 2.99 million tonnes to 0.95 million tonnes. The export quantum rose from nil to 0.41 million tonnes in these two decades.

The production pattern of refineries threw up growing surpluses which had to be diverted to the export markets in certain areas like naphtha. But with the increased use of naphtha as an important feedstock for fertilizers and petrochemicals and the significant upsurge of domestic demand particularly in the years to come is bound to fall short of home requirements. Likewise high-speed diesel is another product whose demand is sure to go up further in view of the increased dieselisation of the Indian railways, as also the rapid growth in the road transport and mechanisation in the farming sectors. This emerging gap between consumption and production ha prompted the Government to step up refining capacity in the indigenous sector in preference to the sizeable imports of petroleum products.

The first public sector refinery with Rumanian collaboration was set up at Gauhati in Assam in the wake of oil discoveries in that State. The Nahorkatia and Moran regions had been established with proven reserves of crude oil. The Gauhati Refinery was designed to process 750,000 tonnes of crude oil from the Assam oil fields and has been operating at 0.8 million tonnes exceeding its designed capacity.

What followed in the wake of Gauhati Refinery was one of repeated successes in the field of exploration and refining. The second refinery was set up in Barauni in Bihar with an initial capacity of 2 million tonnes wiih Soviet collaboration. The first million tonne unit of this refinery went on stream in 1964 and the second unit with similar capacity was commissioned in 1966. The Bitumen and Lube units comprising the third unit was completed in 1967. The capacity of the Barauni Refinery has thus been stepped up to three million tonnes.

The next link in the chain of refineries in the public sector was set up at Koyali in Gujarat to process the crude from Gauhati oil fields. Initial capacity of 2 million tonnes of the refinery was expanded to 3 million tonnes. This refinery's first million tonne unit was commissioned in 1963 while the second and third units were commissioned in 1966 and 1967 respectively.

The setting up of these refineries proved helpful to save nearly Rs. 40 million worth of foreign exchange which would have been otherwise spent for imports. The savings were utilised towards expanding the Koyali refinery capacity from 2 million tonnes to three million tonnes. Almost 40 per cent the designing efforts of this refinery was assigded to Indian engineers ensuring a major breakthrough in refinery designing and construction.

In fact, with revamping and debottlenecking operations carried out, the refinery processed 3.5 million tonnes of crude per annum. It has also its Udex unit for producing benzene and toluene required by the chemicals and petro-chemical industries.

The fourth refinery under the management of Indian Oil Corporation is now under construction at Haldia in West Bengal. It is expected to be completed in mid-1973 and will initially have a capacity of 2.5 million tonnes. In the execution of this project, indigenous talent and equipment is being utilised in a far greater measure than at Koyali refinery.

The fifth refinery (in the public sector) at Bongaigaon in Assam with one million tonne capacity represents an integrated approach between an oil refinery and a petrochemicals complex coming up at the same spot. Two more refineries one at Cochin and the other at Madras with capacities each of 2.5 million tonnes, came up during the 60's. The Cochin refinery is to come up with U.S. collaboration while the Madras project will have collaboration from U.S.A and Iran.

With all these refineries both in the public and private sectors the total refining capacity in 1973 is expected to be stepped up to 23 million tonnes per annum. The public sector refineries' share would be about 67 per cent. This will bring India nearer to self-sufficiency in oil products.

Simultaneously, the efforts to maximize crude oil production are by no means slackening. According to the present estimates the foreign exchange outgo from crude oil imports may have exceeded Rs. 1200 million in 1971 as against Rs. 1020 million in 1970. The present level of crude production is thus sought to be considerably raised within the next few years so that the import bill will be reduced gradually.

Production of crude amounted to 6.8 million tonnes in 1971. The respective shares of Oil and Natural Gas Commission and M/s. Oil India amounted to 3.63 million tonnes and 3.17 million tonnes. By 1973-74 ONGC expects to raise its production to 5.5 million tonnes. Oil India's production is also likely to go up substantially in the course of the years.

The ONGC plants to raise its production are based among others, on the exploratory work already taken up at 20 new structures during 1970-71. In the year a total of 90 wells were drilled with metreage of 189,000. This exploration was initiated in the known oil bearing reserves in the Cambay Basin and Brahmputra. The Commission also proposes to drill three wells in Kutch and is making a determined bid to find oil in

Jaisalmer. Seismic surveys have given preliminary indication of a possible big find in Tripura too. In Jammu and Kashmir the Commission proposes to deep drilling from the present 2,000 to 6,000 metres. Apart from these plans, the ONGC is taking up exploratory work in Andamans and Sunderbans in West Bengal.

Findings from the explorations in the Bombay High on which the ONGC has placed good hopes are expected to become known by the end of the current year. A contract for seismic work was signed with a French firm and the work has been in progress aboard their seimic ship now in the Arabian Sea. After completion of the work, drilling operations will start from aborad the 'Mercury' type platform that has been built by the Japanese shipbuilders M/s. Mitsubishi. The platform is equipped with drilling equipped capable of drilling to a depth of 20,000 feet.

M/s. Oil India has produced 22 million tonnes crude by the end of 1970 since its inception in 1959. They are now feeding the Digboi refinery of the Assam Oil Company and the public sector refineries at Gauhati and Barauni. They will soon be embarking on oil exploration over a new area in Arunachal Pradesh on the basis of seismic studies.

In the field of lube base oils, the first lube integrated all hydrogen complex was commissioned in June 1969 at India's ninth petroleum refinery, namely, Madras Refineries Limited at Manali. The first of the downstream units to be commissioned at the complex was the Indian Oil Blending plant which takes eight varieties of lube based stocks produced by the Madras Refinery and converts them by blending to commonly marketable grade of lubricants for automobiles and industry. The neighbouring petrochem refining plant which produces transformer oil and speciality products was the first one to diversify its range of petroleum products using base lube oils from the Madras Refinery. The third downstream unit that has gone on production is the Urea/N.P.K. Fertilizer plant of the Madras Fertilizers Limited consisting of the largest single stream Ammonia unit based on Naphtha feedstock from the refineries. Under construction are the polyester fibre plant and a nylon tyre cord plant. In addition, work has started at a carbon black plant based on refinery feedstock a bye-product of the lube base oil plant.

The base oils produced in the Madras refinery alone would contribute to an annual foreign exchange saving of Rs. 110 million. The downstream plant which produces transformer oil and the speciality products contribute additionally Rs. 40 million annually in foreign exchange savings. By 1973 when the carbon black plant is expected to go into production a further Rs. 50 million in foreign exchange is likely to be saved. Thus the lube base oils production at the Madras refinery and the downstream units based on base oils would annually save over Rs. 200 million in foreign exchange.

RESEARCH AND PRODUCT DEVELOPMENT

RESEARCH TRENDS TO IMPROVE PRODUCTION OF PULSES

India is the principal grower of pulses with 23 million hectares of land under pulses but the annual production of pulse grains is low at 11-12 million tonnes only. Production statistics for the crop area 1968-69 reveal that pulses contributed only 11 per cent of the total foodgrain production in the country while they occupied nearly 18 per cent of the area under foodgrains.

During the past five years, notable progress has been achieved in the improvement of pulse crops particularly through the development of high yielding and short duration varieties of various pulse crops. Research efforts and experience in pulse crops at the Indian Agricultural Research Institute (IARI), New Delhi are quite reassuring and it is expected that the production of pulse crops in the country will improve year after year. The new early maturing varieties mentioned below have been developed at IARI and have helped to generate a number of multiple cropping patterns in which cereals and pulses complement each other and increase the overall food production.

Quick Maturing Varieties of 'Arhar' : Most of the existing varieties of arhar tend to be late in maturity so that they occupy the land for a period of nearly 10 months. Farmers in the wheat belt of Punjab, Haryana, Western U.P. and Rajasthan do not find it economical to grow these late maturing varieties of arhar as they overlap with the cultivation of wheat and also they are damaged by winter frost which is of common occurrence during the months of December-January. The new high yielding varieties of arhar, S-5 (Pusa Ageti), S-8 (Sharda) and R-60 (Mukta) which mature in 150-165 days will help to extend the cultivation of this crop in areas where the winter frost is a limiting factor as the crop gets ready for harvest before December. These varieties have given yields ranging from 20 to 30 quintals, per hectare. These can replace some of the less production kharif cereals like maize and bajra. The new varieties will have particular impact in rainfed areas, as they have low water requirements. The per day yield of new arhar varieties is also very high for example S-5 and S-8 yielded 10.8 and 12.0 kg./day against the control with 8.4 kg./day.

With the availability of these short duration and high yielding varieties of arhar like, Pusa Ageti and Sharda, arhar-wheat rotation can now be easily practised in many parts of the country. In view of the relatively lower prices of maize *vis a vis* arhar and the greater cost of production of the former, part of the land now cropped to maize could be profitably diverted to arhar.

Furthermore, vast areas under arhar in Eastern U.P., Bihar and Central India experience severe losses due to wilt diseases. Losses to the extent of 30-40 per cent due to this disease were recorded by IARI in Aurangabad Tehsil of Gaya District during their survey programme in 1966-67. To meet such a situation, existing susceptible varieties are to be immediately replaced by an early maturing high yielding variety like R-60 (Mukta) which has high degree of resistance to wilt. Another variety S-3 (Ambika) is on the assembly line and has resistance to Phytophthora stem rot, another serious disease of this crop.

Bonus varieties of Mung, Urd and Cowpea : 'Pusa Baisakhi' a short duration variety of Mung has been found suitable for cultivation during the months of May-June, the intervening period between the main and kharif season during which the fields in much of northern India remain uncultivated. A seventy day crop of this variety has good yields of nearly 10 quintals per hectare. Seeds of this variety are now available in relatively large quantities and the farmers in the irrigated areas of the country are raising this as an additional bonus crop. As it can be successfully cultivated with the residual fertility following wheat harvest, it serves as an important component in relay cropping scheme demonstrated by this Institute. 'Pusa Baisakhi' being a short duration crop is an ideal variety to fit into the multiple cropping programme aiming at maximum food production per unit area per unit time.

More selections, S–8 and S–9 combining early maturity and high yields have been added and entered in the All India Coordinated Trials. These varieties have greater degree of tolerance to leaf diseases and are photo-insensitive and can successfully be grown both during summer and kharif season.

A number of quick maturing, high yielding varieties in 'Urd' *(Phaseolus mungo)* have been developed by this Institute. Urd crop very often fails in northern India due to severe incidence of virus disease, particularly yellow mosaic virus. The India Agricultural Research Institute has evolved virus resistant strains, particular mention may be made of Pusa-1, maturing within a period of 80 days with yield potential of 10-12 quintals per hectare.

A number of early maturing, high yielding varieties of cow-pea *(Vigna-sinensis)* viz. C-13, C-20 and C-152 as grain varieties have been bred at this Institute. These varieties mature within a period of 75-90 days with yield-potential of 10-20 quintals per hectare. These are also highly resistant to virus and bacterial diseases and have shown wide adaptability.

These short duration grain varieties of cow-pea can successfully be followed by wheat/barley/gram etc. in northern India and after upland paddy in Kerala and Andhra Pradesh. These short duration grain varieties of cowpea can also be grown as mixed crop with arhar or can be planted after ragi or tobacco in un-irrigated areas in Andhra Pradesh, Tamil Nadu and Kerala.

Khesari dal - made safe - an answer challenging health problem : Nearly 5 million acres of khesari crop *(Lathyrus sativus)* are grown in the states of Bihar, M. P., U.P. and Gujarat. But the khesari dal from the cultivated varieties contain higher neurotoxin and its consumption leads to crippling disease or paralysis. To combat this problem of health hazard the Indian Agricultural Research Institute has developed a number of short duration high yielding varieties of khesari dal which are relatively free from neurotoxin and consequently safer to the consumers. Some of these varieties, Pusa-10, Pusa-17 and Pusa-24 are presently under pre release multiplication stage and will be available to the farmers.

NEW PRODUCT LINES IN RAILWAYS

It has been proposed by the Union Minister for Railways to augment the rolling mill facilities in the Jamalpur Workshop of the Eastern Railway and produce approximately 25,000 tonnes of track fittings per annum to tide over the shortage in the supply of the fittings from indigenous sources. Introducing the Railway Budget for the year 1972-73, the Minister stated that the Government had to give a fresh impetus to the policy of self-sufficiency "after the so-called foreign aid from certain powers stopped or threatened to be stopped". The Railways would propose to this end to start two new projects to manufacture wheels and axles and track gears.

Domestic requirements of wheels and axles have been met in part only by indigenous production, the rest having been purchased from abroad at a cost of Rs. 58 million a year. The proposed plant for manufacturing wheels and axles would be one from railway production unit and would produce approximately 20,000 wheel sets and 25,000 loose wheels per year making the Indian railways virtually self-sufficient.

There has also been an increasing requirement of traction gears for diesel and electric locomotives and Electric Multiple Unit stock. As dieselisation and electrification make further progress the level of imports which presently stands at Rs. 5 million per year would go up higher. It has therefore been proposed to add a Traction Gear Plant to the Diesel Locomotive Works at Varanasi to do away with dependence on imports.

Imported stores in Indian railways have during the las two decades been reduced from 30 per cent to less than 9 per cent inspite of total purchases having increased nearly fourfold. The imports are now limited to only certain essential raw materials, proprietary items and other components for manufacture of rolling stock etc., for which indigenous capacity or technological capability is not yet available in the country. Foreign exchange required for the imports is met from specific loans by foreign countries under bilateral agreements and credits given by the International Development Association. The Indian railways have recently obtained a credit from IDA of $ 75 million which will be used to produce essential raw materials and components.

AUTOMOBILES AND ANCILLARIES

PRODUCTION TREND

The actual production of automobiles has witnessed a steady uptrend in the decade 1961-1971 except in 1966-67 and 1967-68 when there was recession in the industry. Manufacture of commercial vehicles increased from 24,788 numbers in 1961 to 43,526 numbers in 1971 while production of cars went up from 21,662 numbers to 39,325 numbers. From 7904 numbers production of jeeps rose to 11,053 numbers. Registering a five fold increase outturn of motor cycles in 1970 stood at 42,968 numbers as compared to 8,636 numbers in 1961. However, the output in 1971 showed a decline at 39,730 numbers. Production of scooters too registered more than five-fold rise by reaching 67,212 numbers as compared to 12,817 numbers. Three wheelers increased from 1267 numbers to 6146 numbers while mopeds and scooterettes went up to 14,113 numbers from 2634 numbers.

The production increase in 1971 over that of 1970 was 7 per cent in the case of commercial vehicles (43,526 nos. and 40,558 nos.), 10 per cent in cars (39,325 nos. and 35,829 nos.), 19 per cent in jeeps (11,053 nos. and 9,334 nos.), 45 per cent in three wheelers (6,146 nos. and 4,289 nos.) 15 per cent in scooters (67,212 nos. and 58,392 nos.) and 21 per cent in mopeds and scooterettes (14,113 nos. and 11,687 nos.). Only in the case of motor cycles there has been a reduction by 7.5 per cent (39,730 nos. and 42,368 nos.).

The types of vehicles turned out by the automobile industry cater to the diversified transport need of the country. The commercial vehicles are produced from 3/4 tons to 16 tons payloads, of which the principal production is in the range of 7½ tons. The passenger cars cover 1000, 1100 and 1500 c.c. capacities. There are also the variations of the basic model of passenger cars and jeeps into delivery vans and stations wagons to meet the requirements of commercial applications.

Capacity Expansion

There are at present 16 units engaged in the production of automobiles. Eight of them produce vehicles like trucks, buses, jeeps and cars (one unit out of this is exclusively devoted to the production of automobile deisel engines), the other eight are engaged in the manufacture of 2-wheelers such as scooters, motor cycles, mopeds and scooterettes. Two of the four scooter manufacturers also produce auto rickshaws.

Along with the improvement in road mileage, the demand for automobiles has risen appreciably. In view of this, creation of additional capacity has been taken up. Two letters of intent have been issued for manufacture of commercial vehicles under 3½ ton payload capacity. Expansion of the existing undertakings has also been permitted. In the passenger cars sector letters of intent have been issued for five new undertakings for a total capacity of 160,000 units per annum. Apart from this, letters of intent for registration for the manufacture of passenger cars with completely indigenous knowhow, under the liberalised licensing policy have been issued to three units.

The scooter industry has been opened up for further licensing. Letters of intent have been issued to 22 to 23 units, each with an annual capacity of 24,000 numbers. One unit has been given a letter of intent for registration for the manufacture of scooters. For manufacture of three wheelers letters of intent have been issued to 15 units for a total annual capacity of 226,000 numbers. One unit has been registered for the manufacture of mopeds of 55 cc engine capacity.

In the case of motor cycles, a letter a intent has been given to a unit for manufacture of 30,000 motor cycles and 50,000 scooterettes in the range of 48 cc engine capacity and above. Two existing units have been permitted to expand their capacity.

Installed Capacity and Demand

The installed production capacity of the automobile industry at the end of 1971 was 62,400 numbers for commercial vehicles,47,400 numbers for passenger cars, 10,000 numbers of jeeps and 167,300 numbers of motor cycles, scooters, 3 wheelers etc.

The Working Group on Transport Equipment constituted by the Government have assessed the requirements for the various types of vehicles and ancillaries for the Fourth Five Year Plan period. The targets based on these studies envisages a general capacity growth of 80 to 100 per cent over a period of 5 years. The targets for the final year of the Fourth Plan (1973-74) for the various types of vehicles are : commercial vehicles-85,000 nos. cars - 75,000 nos, jeeps 15,000 nos, motor cycles, scooters, mopeds, auto rickshaws etc. 210,000 nos. and ancillaries - Rs. 1700 million worth.

Automobile Ancillaries

The output of automobile ancillaries has consistently increased over the years. From Rs. 90 million in 1960-61 production has reached the level of Rs. 1069 million in 1970-71. In 1969 it was of the order of Rs. 800 million. In addition, the value of production achieved by the small scale units is estimated to be around Rs. 200 to 250 million per annum.

Initially the industry turned out mainly pistons, fan belts, radiators, rubber hoses, silencers and leaf springs. At present well over 100 items are produced in the country. The contribution of the ancillaries industry to the main vehicle in the present pattern of make or purchase structure amounts to about 45-50 per cent of the value of the vehicle.

Many of the ancillaries have registered production uptrend in 1971 as compared to 1970. For instance output of nozzles went up from 2.1 million nos to 2.31 million nos, elements from 2.2 million nos to 19.75 million nos; delivery valves from 2.0 million nos to 2.59 million nos: filters (oil, air and fuel) from 526,000 nos to 978,000 nos; starter motors from 137,300 nos to 205,000 nos; wheels and rims from 630,900 nos to 780,000 nos; shock absorbers from 1.17 million nos to 1.44 million nos; spark plugs from 2.9 million nos to 3.52 million nos : brake assembly 122,000 nos to 196,000

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nos; ignition coils from 211,000 nos to 300,000 nos; voltage regulators from 254,000 nos to 275,000 nos; distributors from 76,000 nos to 90,000 nos, rotar arms from 55,000 nos to 88,000 nos; brake drum assembly 9400 nos to 10,400 nos; magnetos from 12,500 nos to 51,000 nos; king pins from 117,500 nos to 138,000 nos; gears from 228,400 tonnes to 251 000 tonnes; steering gears 29,500 nos to 34,700 nos; crankshafts 9230 nos to 20,600 nos; pistons from 1.75 million nos to 1.81 million nos; cylinder liners from 231,000 nos to 282,000 nos; engine valves from 3.85 million nos to 4.53 million nos; carburettors from 4137 nos to 9500 nos; fuel pumps from 10,400 nos to 20,000 nos; radiators, cores, caps, heat exchangers etc. from 105,300 nos to 137,000 nos; fuel hoses from 573,500 nos to 677,000 nos; water thermostat from 32,200 nos to 36,000 nos; clutch cover assembly from 24,400 nos to 82,000 nos and from 82,000 sets to 131,000 sets; panel and dash board instruments from 838,000 nos to 971,000 nos; taximeters from 738 nos to 3,100 nos; propeller shafts from 74,900 nos to 80,800 nos; torsion bars from 43 tonnes to 79 tonnes; sintered strips from 283,000 ft. to 584,000 ft; thickwalled bearings from 128,000 nos to 157,000 nos; tyre tube valves from 5.59 million nos to 6.35 million nos; cores from 4.39 million nos to 9.55 million nos; caps 3.36 million nos to 5.0 million nos and tipping gears from 1700 tonnes to 2400 tonnes. Production of hydraulic pumps which was started in October 1970 amounted to about 6000 nos in 1971.

High Indigenous Content

The countribution of the ancillary units combined with the efforts of the main manufacturers has made the Indian automobiles highly indigenous. The indigenous content in the manufacture of vehicles has reached a level of 90 to 95 per cent and in some of the vehicles it is as high as 98-99.5 per cent. The items still imported for some types of vehicles are carburettors, magentos and certain special bearings and fasteners. In addition to components, deep drawing steel sheets and special alloy steels are imported. Efforts are being made to meet these requirements too from indigenous sources and it is expected that imports would be minimised over the next few years.

Export Performance

Overseas sales of automobiles and ancillaries fetched Rs. 61.11 million in the first six months of 1971-72 (April-September 1971). Of this jeeps and cars had a share of Rs. 1.20 million with Singapore, and Nepal as the major importers. Export of buses brought in Rs. 11.65 million. Ceylon accounted for Rs. 6.54 million while Nigeria and ARE absorbed Rs. 2.51 million and Rs. 2.06 million worth respectively.

Lorries and trucks worth Rs. 12.24 million were exported in the period mainly to ARE (Rs. 5.0 million) Nigeria (Rs. 4.21 million) Yugoslavia (Rs. 1.61 million) and Ceylon (Rs. 1.05 million). Special purpose lorries and trucks earned Rs. 1.54 million with ARE importing Rs. 857,800 worth and Afganisthan Rs. 606,200 worth.

Chassis engine mounted accounted for Rs. 5.37 million. Ceylon with Rs. 1.78 million, Yugoslavia with Rs. 1.53 million, and Nigeria with Rs. 1.20 million were the major importers.

Automobile initial and replacements parts worth Rs. 28.38 million were exported during the period. These items are directed to many countries of the world.

During the full year 1970-71, automobile and ancillary exports amounted to Rs. 212.7 million which was a 48 per cent improvement as compared to the 1969-70 exports at Rs. 143.50 million.

Besibes export of automobiles, the industry is now in a position to enter the field of export of technical know-how. An Indian firm has already entered into an agreement for the setting up of an automobile piston components unit in Malaysia. □

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AMMONIUM CHLORIDE IN EXPORT BUSINESS

In 1970-71, India's export value of ammonium chloride was nearly Rs. 1 million. The Arab Republic of Egypt, Kenya, Uganda and Vietnam Republic were the importers. The quantum exported in that year was over 1.10 million kg. In the first half of 1971-72, the importers included South Yemen Peoples' Republic, Iran, Kenya and Ceylon.

With two units engaged in the manufacture of ammonium chloride the annual installed capacity in 1970 was of the order of 16,380 tonnes while the actual production in 1970 was 7367 tonnes. The improvement in actual output could be noted against the 4557 tonnes produced in the preceding year.

M/s. Fertilisers and Chemicals, Travancore Ltd. Udyogamandal P. O. (Kerala) entered the export market as early as 1968-69. Their production of technical grade ammonium chloride was barely sufficient to meet the indigenous demand especially from dry cell manufacturers and galvanising and engineering industries, before they could launch on export trade. But in 1968-69 their export quantum was 485 tonnes. The export value was Rs. 315,200 and the importer was the Arab Republic of Egypt. In the following year FACT exported to ARE a quantity of 260 tonnes valued at Rs. 175,000. In 1970-71 the firm could increase their overseas sales considerably. Their exports reached in addition to UAR to other countries like Kenya, Uganda and South Vietnam. In that year the total quantity exported by them was approximately 1120 tonnes valued at Rs. 0.8 million. In 1971-72, they exported about 28 tonnes at Rs. 37,000. The sharp fall in exports was in view of the increased production abroad. However, they could find new areas like the Sudan in this year.

The above company have orders on hand for sizeable quantities from Iran, Australia and Cambodia and expect to finalise the business shortly.

The quality of FACT's ammonium chloride has been found satisfactory and comparable to that offered by other competitors in the world markets. This gives confidence to the firm to procure more export orders in the near future.

WATER COOLERS IN EXPORT TRADE

The refrigeration industry in India has already succeeded in exporting water coolers to several markets far and near. During 1970-71, the foreign exchange earned from these exports was of the order of Rs. 1.08 million. Kuwait was the most important market with an absorption value of Rs. 0.72 million. Qatar, Costa Rica, Abu Dhabi, Bahrain Islands, Dubai and Malaysia were the other major importers. In the first half of 1971-72, the export effort of water coolers stood at Rs. 0.3 million. Here again Kuwait led the list of importers closely followed by Abu Dhabi.

M/s. Blue Star Engineering Co. P. Ltd., Kasturi Buildings, Jamshedji Tata Road, Bombay have recently entered into a licensing agreement with a Kuwait firm for the technical know-how and patent rights in respect of the manufacture and sales of their water coolers in that country. Being an important manufacturer - exporter of water coolers in India, the firm contributed a major share in the country's export endeavour in the line, having exported their products to about seventeen countries.

FERRO MANGANESE
EXPORT EFFORT

In the first half of 1971-72 (April-September 1971) export value of ferro-manganese from India stood at Rs. 16.20 million. In the full year 1970-71 exports in the line fetched Rs. 84.24 million. Japan has been the importer of ferro-manganese with 3 per cent carbon. U.S.A. and Sweden have been the other principal markets.

M/s. Khandelwal Ferro Alloys Ltd. Bombay succeeded in selling overseas, their products at Rs. 13.1 million in 1971. Their export performance would have been in fact higher but for the fall in international demand for ferro-manganese because of recession in the steel industry throughout the world. The company's export of ferro manganese slag has however, nearly doubled during 1971 to Rs. 1.5 million from Rs. 0.8 million in 1970.

The Bombay firm's steel tube factory improved their output during the year to the highest level so far, at 32,534 tonnes. The company's exports were higher by 4 per cent at Rs. 6.19 million as against Rs. 5.94 million in 1970.

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GARAGE EQUIPMENT TO SOVIET UNION

The State Trading Corporation of India, New Delhi have recently signed a contract with the Soviet Union for export of garage equipment. The equipment covers petrol pumps, hoists, etc. manufactured by M/s. Larsen and Toubro. The contract was concluded by STC against stiff competition from major suppliers in Western Europe.

This happens to be the biggest single export order for these items concluded so far by any Indian party.

EXPORT TRADE IN AGARBATTIS

There was about 27 per cent improvement in the export performance of Agarbattis during 1970-71 at Rs. 12.75 million over Rs. 10.07 million of their export effort in the preceding year. Several overseas markets are currently importing large quantities of these perfumed sticks from India.

M/s. B. B. Aswathiah & Brothers, 193 Nagarathpeth, Bangalore-2 have won top awards for their export performance in agarbattis. From a small start, the firm have already to their credit export business in Singapore, Malaysia, Hongkong, Thailand, Japan, Philippines, as also West European, Latin American and African markets. The firm's total turnover is of the order of Rs. 4.6 million per annum and nearly one third is marketed abroad.

EXPORT BUSINESS IN TERENE

Terene blended fabrics and garment exports by M/s. Chemicals and Fibres of India Limited, Bombay were at a level of over Rs. 9 million during the year ended September 1971. Even in the face of keen world competition, the company's position in the markets of Africa, Asia and Middle East has been well consolidated. They have even entered the sophisticated garment markets of Western Europe and North America.

The Bombay firm have geared their research work to develop new types of fibre variants and to investigate their use in areas so far not attempted in India. Polyester fibre had so far been blended with imported long staple cotton but the company aims at developing new lines by blending polyester with short staple cotton that is available in plenty indigenously. The supply of polyester raw material (DMT) is expected to be made available from the Koyali Petrochemical complex, by the end of this year. With the supplies of Koyali complex, import of DMT is expected to be stopped completely. Presently Rs. 20 million worth of this material is being imported annually to meet the requirements of the polyester fibre manufacturing units.

The Bombay firm's overall exports of fibres and garments and polyester fibre are in the range of Rs. 40 million since 1965. Over 80 types of products are being supplied by them to more than 35 overseas markets. In addition, the company had already saved foreign exchange worth Rs. 170 million by obviating the need for imports.

EXPORT PERFORMANCE AND POTENIAL

INDIA'S VIEWPOINT AT ECAFE

India's Foreign Trade Minister, Mr. L. N. Mishra, stated that it was more urgent than ever before for the developing countries in Asian Region to intensify their search for complimentaries among themselves. This would ensure fuller utilisation of their natural resources, strengthening of their infrastructural facilities and development of industry and commerce.

Addressing the plenary session of Economic Commision for Asia and Far East, the Minister recalled the disappointing progress that had been achieved since the inception of UNCTAD in the field of international economic cooperation and said "while my Government will go to Santiago with hope and expectation that positive results achieved in April will arrest receding hope of mankind in the value of international cooperation, I have no doubt the problems of Asia would have to be solved primarily by efforts made in the region itself through bilateral, subregional and regional measures mutually reinforcing each other."

It was pointed out that the reform of international institutions and improvement in global environment of trade no doubt impinged on the extent to which Asian regional efforts could be accelerated. He felt that selection of well conceived projects based on practical considerations of each others' needs and requirements and the allocation of priorities on pragmatic considerations would give greater content to the concept of self-help and self-reliance in the Asian region.

While exchange of information on needs and requirements of different countries of the region would assist flow of trade, the Foreign Trade Minister referred to the third Asian International Trade Fair to be held in Delhi later this year and expressed the hope that the Fair would contribute towards intensifying mutual relations and understanding among the countries of the region.

Dealing with specific problems faced by the countries of the Asian region he laid particular emphasis on the role of ECAFE in regard to commodities which had considerable significance for the economies of majority of the countries of the region. He noted that India derived some satisfaction from the understanding reached on the number of important commodities with other producers in the developing countries of Asia. Cooperation with Ceylon to stabilise export earnings from tea, cooperation in the shape of Asian pepper community with Indonesia and Malaysia and cocount community with Philippines and Ceylon are cases in point. Effective solutions to commodity problems could also constitute positive steps in finding helpful solutions to difficult problems of least developed among the developing countries.

The most outstanding feature of regional development in Asia for which greater measure of credit went to the ECAFE was the considerable development and accumulation of skills and expertise in different sectors in the countries of the region. "It is of utmost importance that we make maximum use of such expertise and skills which have relevance to the varied needs of developing countries of the region. It is also necessary to ensure a degree of regional identity both in organisation and in projects and schemes which we have commissioned".

EXPORTS OF HANDICRAFT PRODUCTS

Exports of handicrafts from India during 1970-71 aggregating Rs. 803 million registered a marginal decline of about Rs. 30 million compared with the preceding year. In 1970-71, the share of handicrafts in the over all exports from the country came to 5.3 per cent.

In 1961-62, the export value of handicrafts was of the order of Rs. 193.4 million. It rose to Rs. 275·8 million in 1965-66. The value was Rs. 401 million, Rs. 543.4 million, Rs. 752.4 million and Rs. 832.9 million in the following four years. Looking at the performance of these exports during the last one deadce since 1961-62, the increase has been more than fourfold.

The most important group in the context of handicraft exports is precious, semi-precious and synthetic stones. Exports in this category have been recording an upward trend year after year and have in fact more than doubled since 1966-67. In 1970-71 the export value was Rs. 418.8 million.

Exports of woollen carpets, rugs and druggets including namdhas amounted to Rs. 109.43 million in 1970-71. Handprinted textiles earned Rs. 74.87 million, imitation jewellery fetched Rs. 19.61 million. The export value of artmetal wares was Rs. 65 million, woodware Rs. 29.4 million and embroidered goods Rs. 8.5 million. Exports of zari were Rs. 10.3 million and ivory products Rs. 2 million.

Among the other categories of handicraft exports, agarbattis earned Rs. 12.75 million, leather products Rs. 9.85 million and other miscellaneous works of art Rs. 6.6 million. Articles of tortoise shell, mother of pearls, etc., musical instruments ; dolls and toys ; horn articles; papiermache articles ; stuffed animals, carpets, carpetings and rugs of vegetable materials ; fancy glass smallwares ; sculptures etc. have also registered increases in 1970-71, compared with their previous years' export performance.

PROSPECTS FOR HANDLOOM EXPORTS

Trial orders worth Rs. 1 million have been secured by the Handloom Export Promotion Council delegation which visited Australia, New Zealand and Fiji recently.

Export to this region is expected to double by next year following the four week visit of the delegation. Value of export to these countries was Rs. 5.32 million during 1970-71.

With its demand for printed varieties, Australia is a big potential market for Indian handloom fabrics because of duty free imports. Indian handloom exports to Australia amounted to Rs. 3.82 million in 1970-71.

New Zealand which imported Rs. 780,000 worth of Indian handlooms during 1970-71 is interested in Indian silk and readymade garments. Fijian Goverment has promised to exempt Indian handlooms from the present 25 per cent import duty, it is reported. Fiji imported Rs. 720,000 worth of handlooms from India in 1971. The Government of Fiji has also permitted the opening of an Indian handloom house at Suva.

INSTANT TEA PICKS UP

Production and exports of instant tea are steadily picking up India. Presently two firms are engaged in its manufacure. Production for the last five years has increased ten-fold from Rs. 30,354 kg in 1966 to 316,000 kg. in 1970.

As in the case of production, exports of instant tea have also been brightening. In 1967, the total quantum of export was 51, 681 kg. Of this the U.S.A. imported 31,752 kg. and the rest was bought by the United Kingdom. In 1968 Switzerland imported 200 kg. and the U.S. share increased to 59,830 kg. Total exports went up to 60397 kg. Of the total exports of 198,000 kg. in 1969, the U.S.A. imported 164,000 kg. West Germany emerged as a new buyer. Exports to U.K. were at a level of 33,547 kg. In 1970 exports further went up to 319,000 kg of which the share of U.S. and U.K. were 217,000 kg and 102,000 kg. respectively. The improvement in export quantum was also reflected in the volume of foreign exchange earnings. From a little over Rs. 0.54 million earned in 1966 the export value rose to Rs. 10.5 million in 1970. The production and export levels in Ceylon, India's major competitor in the market, shows declining trends in 1970 as compared to the preceding two years. Ceylon's production in 1968, 1969 and 1970 were 135,000 kg. 136,000 kg. and 117,000 kg. respectively. Their exports in the three years were 128.000 kg. 132,000 kg. and 113,000 kg. respectively, it is learnt.

EXRORT PERFORMANCE OF CARDAMOM

Cardamom exports in terms of value touched an all time high of Rs. 113.4 million during 1970-71. This was more than 27 per cent over the previous year's figure of Rs. 89.3 million. In terms of quantity, the rise in exports was more than 70 per cent - from 1150 tonnes in 1969-70 to 1972 tonnes in the following year, registering decline in the average unit export price.

Export of the first ten months of 1971 came out to 1602 tonnes valued at Rs. 78.4 million against 827 tonnes valued at Rs. 70.6 million in the corresponding period of the previous year.

There has been a steep increase in the world production of cardamom. India's production went up from 2300 tonnes in 1969-70 to 3170 tonnes in the following year. Crops in other major producing countries like Tanzania and Guatemala were exceptionally good. This obvisously led to competition and consequent slump in international markets.

Major producing countries are considering ways and means of checking competition *inter se.* Such proposals to market on cooperative basis should indeed help eliminate competition and stabilise export prices over a period of time.

REVIEW OF SILK PRODUCT EXPORTS

For the first eleven months of 1971-72 (April 71-Feb. 72) India's export value of silk goods was Rs. 65.78 million. It is anticipated that for the entire financial year the export trade may reach the level of Rs. 70 million.

The mulberry silk fabrics were sold overseas to the tune of 3.54 million sq. metres and earned Rs. 54.16 million. About 0.64 million sq. metres of art silk fabrics earned Rs. 11.62 million in the period reviewed.

Compared to the export earnings of silk goods in the corresponding period of 1970-71 there has been a sizeable fall (about 30 per cent) in the first eleven months of 1971-72. Mulberry fabrics during April, 70-February 1971 earned Rs. 83.43 million and tassar silk fabrics Rs. 11.13 million.

Among the countries which contributed towards progress in silk products exports were Malaysia, Kenya and Hongkong in the traditional market and France, U.K. and Sweden in the non-traditional market. Major importers of Indian silk fabrics in the period reviewed as before was the German Federal Republic. This market absorbed Rs. 13.68 million worth of silk goods during April 71-February 1972. Next in importance were the U.S.A., (Rs. 5.4 million), Malaysia (Rs. 5.2 million), France (Rs. 3.97 million), Japan (Rs. 3.74 million), U.K. (Rs. 3.25 million) and Kenya (Rs. 2.47 million).

Among the major categories of silk that are active in the export business are scarves which earned Rs. 15.7 million in the period reviewed. Dress materials fetched Rs. 19.3 million, sarees Rs. 9.55 million, readymade garments Rs. 5.44 million and ties Rs. 3.39 million.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

ALUMINIUM INDUSTRY

A FUTURE OUTLOOK

Four major units, namely, M/s. Indian Aluminium Company Ltd. (INDALCO), Aluminium Corporation of India Ltd. (ALCOP), Hindustan Aluminium Corporation Ltd. (HINDALCO) and Madras Aluminium Company Ltd. (MALCO) continue to be the renowed manufacturers of primary aluminium in India. The Korba and Koyana units of M/s. Bharat Aluminium Company, a public sector undertaking are under installation. Between 1968 and 1971 the aluminium industry in the country made good progress resulting in an increase of about 44 per cent of the capacity. From 117,050 tonnes to 169,000 tonnes, the increase has been accounted for by the INDALCO's Belgaum smelter with an installed capacity of 30,000 tonnes which commenced regular production in 1970, the extension programme of HINDALCO by an additional 20,000 tonnes capacity in 1969, the increased capacity by ALCOP by 300 tonnes towards the end of 1968 and MALCO's capacity, it is reported to have increased by 1500 tonnes.

The total production of the industry continue to increase from 120,130 tonnes in 1968 to 132,556 tonnes in 1969 to 161,081 tonnes in 1970. During the first half of 1971 (January to June) the total production of primary aluminium was of the order of 87,123 tonnes. The capacity utilisation which was only of the order of 83 per cent in 1969 improved to 95 per cent in 1970.

The future expansion programmes indicate that in respect of INDALCO a licence has been granted for substantial expansion of the smelter from 30,000 to 40,000 tonnes and a letter of intent for further expansion from 40,000 to 60,000 tonnes has also been ssued. The former is expected to be completed shortly while the second stage of expansion is likely to be completed by 1974-75 by which period the company expects to expand the total metal capacity to 100,000 tonnes. M/s. HINDALCO were licensed for expansion up to 120,000 tonnes as early as 1966 against which they have already expanded capacity to 80,000 tonnes. The remaining expansion is expecte to be completed n two stages, namely, 100,000 tonnes by April 1972 and 120,000 tonnes by the end of 1973. The MALCO unit is already licensed for expanding its capacity to 25,000 tonnes. Their smelter has already attained a capacity of 14,000 tonnes and further increase up to 25,000 tonnes is expected to be completed by 1973-74. As regards ALCOP a licence for establishment of new ntegrated aluminium project in Orissa with a capacity of 30,000 tonnes was granted, early in 1971. It is envisaged that they will reach full capacity by 1974-75. Among the public sector projects M/s. Bharat Aluminium Company has been established for the manufacture of aluminium ingots with two large units at Korba and Koyna with a capacity of 10,000 tonnes and 50,000 tonnes respectively. The Korba unit is based on the bauxite deposits in Madhya Pradesh and its electric power from Korba Thermal Station. It is a composite project with an annual capacity of 200,000 tonnes of alumina in addition to 100,000 tonnes of metal including about 60,000 tonnes of aluminium semis. Preliminary work relating to the alumina plant is in progress and is expected to be commissioned in 1972. The second phase of the Korba Aluminium Project consisting of the smelter for annual production of 100,000 tonnes of aluminium metal and a rolling mill is being undertaken with technical and financial assistance of the Soviet Union. These plants are expected to be completed and go into production in stages in 1973-74 and reach full capacity by 1975-76.

The Koyna Project located in Ratnagiri is based on bauxite deposits in Maharashtra and the required power would be supplied from the Konya Hydel Station. The licensed capacity of this unit is 50,000 tonnes of which 25,000 tonnes would be aluminium of E. C. grade. The detailed project report is to be prepared by National Industrial Development Corporation in technical association with Hungary. Even before the project report was envisaged to be completed it was decided that it would be advantageous to commission the smelter plant at Ratnagiri earlier than the alumina plant with a view to utilising the expected surplus alumina from Korba. The smelter plant is likely to go into production in 1973-74 and achieve full capacity by 1975-76.

The above scheme is expected to be implemented by 1975-76. Before complection the total installed capacity of the aluminum industry in India will be of the order of 430,000 tonnes as against the existing capacity of 169,000 tonnes.

In respect of rolling products the total installed capacity of sheets, circles and strips was estimated at 50,000 tonnes in 1968. By 1970 total installed capacity for sheets, circles and strips was af the order of 46,900 tonnes and actual production 42,290 tonnes.

Two of the primary metal manufacturers, namely INDALCO and MALCO were licensed for 11,500 tonnes and 3500 tonnes respectively of semis manufacture. While the former is expected to go into production soon, the latter capacity is to materialise by 1973. M/s. Bharat Aluminium company also hold a licence for the manufacture of 50,000 tonnes per annum for alumium rolling at their Korba Plant.

In the field of aluminium foils and container sheets M/s. India Foils Limited Continues to be the major producer followed by INDALCO and ALCOP. In 1971 the three units had a combined capacity of 7200 tonnes for the production of foils including container sheets while their output in 1970 was 6316 tonnes.

In 1970 the export quantum of aluminium alloys (unwrought) was 2600 tonnes and the value was Rs. 15.84 million. The export quantum of aluminium and worked alloys was 9000 tonnes at a value of Rs. 41.5 million.

LIGHT MECHANICAL ENGINEERING

OUTPUT GROWTH

Most of the light mechanical engineering industries in India have witnessed appreciable production rises during 1971. Among the priority industries growth of production was recordrd especially for high tensile bolts and nuts, mild steel bolts and nuts and mild machine screws. Among the non-priority industries there has beed a discernable progress in the production of welded steel link chains, gramophone needles, hand sewing needles etc.

The percentage production increase in 1971 over that of 1970 was 28 per cent in respect of high tensile bolts and nuts, 17 per cent in M. S. bolts and nuts, and 35 per cent in M. S. machine screws. The percentage growth for welded steel link chains was 46.3 per cent, 109 per cent for gramophone needles and 24 per cent for hand sewing needles. Other light mechanical engineering industries where increased production was recorded are pipe fittings (19 per cent), high tensile machine screws (4 per cent), tubular rivets (25 per cent), welded wiremesh (25 per cent), knitting pins (20 per cent), and strainers (about 18 per cent).

In the safety razor blades industry, however, there was a fall in output in 1971 and decrease was of the order of 30 per cent. In 1971, the installed capacity of the high tensile bolts and nuts manufacturing industries was of the order of 12,340 tonnes, while the actual production in the year was 5231 tonnes. In respect of mild steel bolts and nuts 19 units have a combined installed capacity of 48,100 tonnes and their production 26,950 tonnes. The installed capacity of tubular rivets is of the order of 79 million numbers per annum and the actual production in 1971 was over 35 million numbers. High tensile machine screws have a capacity of 48 million numbers and the output was 22 million numbers. The production of M. S. machine screws at 560 million numbers exceeded the installed capacity of 524 million numbers. Woodscrews were produced to the tune of 1531 million numbers in the year while the capacity was only 995 million numbers.

Seven manufacturing units have a capacity of 2095 million numbers of safety razor blades while actual production was 672 million numbers. With an available capacity of 0.8 million numbers the production of safety razors was 75,000 numbers.

Installed capacity improved in respect of valves and cocks from 1.82 million numbers in 1970 to 1.84 million numbers in the following year. Production i 1970 was 0.89 million numbers.

Three units are engaged in the manufacture o saintary fittings. Their installed capacity in 1971 wa as much as 0 57 million but the actual production wa only 70,000 numbers. In the case of pipe fittings als there is far larger capacity available at 8538 tonne while actual output in 1971 was 2500 tonnes. In th case of strainers production was 226 tonnes while th installed capacity was 1560 tonnes.

Production improved from 3760 tonnes in 1970 t 4700 tonnes in 1971 in the field of welded wire mes for which the installed annual capacity is about 872 tonnes. Steel link chains were manufactured to a leve of 926 tonnes in 1971 in which year the installe capacity for these chains was 3330 tonnes.

Gramophone needles witnessed more than doublin of production in 1971 at 230 million numbers as compared to 110 million numbers in the preceding year The installed capacity as in 1971 was only 169 millio numbers. Hand sewing needles constitute anothe example where production improved substantially fro 301 million numbers in 1970 to 374 million numbers i 1971. Its annual installed capacity is 1060 millio numbers. While the installed capacity of knittin pins was only 2.9 million numbers, actual output i 1971 was 7.1 million numbers. The output in th washer industry during 1971 has equalled the installe capacity at 80 tonnes.

There are proposals to improve production capacit in some of the industries mentioned above. For th razore blade industry although no new licences hav been issued six letters of intent were issued for settin up new units for the manufacture of blades. The six proposals will have a combined annual capacity of 161 million numbers. Similarly in respect of industrie like high tensile bolts and nuts and pipe fittings als no new licences have been issued but three letters o intent were issued for the manufacture of high tensil bolts and nuts and one letter of intent for the produc tion of pipe fittings. The three proposals to expan capacity for high tensile bolts and nuts will have combined additional capacity of 3700 tonnes. Th proposed additional capacity of pipe fittings is of th order of 2100 tonnes.

BRIGHT STEEL PRODUCTS

A REVIEW

Until a few years ago, the bulk of the requirements of bright steel bars and shaftings in the country were being met mainly through imports. But today it is one of he basic feeder industries. Thanks to the rapid trides in just a decade, the industry now not only meets the entire home demand, but also caters to the equirements of customers in even advanced countries ike the U. S.

High Machineability

Bright steel is a specialised category of precision inished steel with enhanced mechanical properties and physical features especially dimensional accuracy, olerance, brinel hardness, malleability, machineability, ensile strength, surface finish and the like. As the name itself indicates, it is a gleaming steel, free from oughness or dimensional inaccuracy and offers maximum machineability for making a wide range of machinery and equipment, components, spare parts and accessories, machine tools and workshop tools. It is a teel that prolongs tool life, and eliminates secondary inishing.

Process Technology

Bright steel is produced with the most up to date machinery and equipment using advanced prodution echniques. The term 'bright steel' is often used interhangeably with 'cold finished steel'. Though 'cold inished steel' includes turned and ground products, drawn bars are the principal cold finished roduct. This is due to the high importance of 'cold drawn bars' as the basic raw material for products urned out of automatic screw machines and also for hafting. Cold drawn steel bars are a recent development. In India it is processed and manufactured by ne most advanced processes, namely, cold drawing, entreless turning and centreless grinding.

Cold Drawing : The product from the cold drawing rocess has met with remarkable success. It is accurate n size and tolerance with increased mechanical properies. Bulk of the bright steel is made by this process nce it is the easiest process and comparatively much heaper. Also, cold drawing lowers the ductility of ne steel and produces complex changes in the microscopic structure resulting in an appreciable increase in machineability. The material can be cut with less power, and it provides a quality of finish not obtainable from hot-rolled bars. Though ductility is reduced, the working of the metal also raises strength. Thus the yield point is raised, permitting the use of small sections where desirable.

Centreless Turning : Bright steel made by turning process is called 'turned (peeled) bright bars' and has higher polish and dimensional accurancy so that the bars and shaftings can be used for producing a great variety of precision parts and equipment.

Centreless Grinding : The third process is used for making 'Ground Bars' for sophisticated products which require the closest possible tolerances.

Indian manufacturers produce bright steel bars and shaftings of different grades and qualities-commercial mild steel, carbon steel, lead steel, alloy steel and other special steels, according to the standards and specifictions conforming to BSS'EN Series, SAE, ISI, DIN and AISI and other national and international specifications in rounds, squares, hexagons, octogons, flats and other sections. The products compare favourably with the finest in the world and conform to the highest international standards in finish, accuracy, straightness, tolerance and quality.

'Bright steel bars and shaftings', are used for manufacturing a wide range of precision equipment and parts. They ase extensively used for manufacturing strategic items and defence equipment, required for artillery, armoury, aircraft and ships. Of late, they are also being used for space equipment.

The industry, though of recent origin has made notable progress both in respect of production and exports.Production of bright steel bars and shaftings has more than doubled in four years - from 33,000 tonnes in 1967-68 to about 72,000 tonnes in 1970-71.

Export Performance

The industry has a good export performance. From only Rs. 10,000 in 1963-64, exports shot up to Rs. 5.5 million in 1967-68; Rs. 7.5 million in 1968-69 and reached an all-time high level of Rs. 16 million in 1969-70, but suffered a slight set back in 1970-71 when they dipped to Rs. 11.7 million. The export target for 1973-74 has been fixed at Rs. 27.5 million.

RECORD PRODUCTION OF HEAVY MACHINES

The Heavy Engineering Corporation expects to close the financial year 1971-72 with the total production of over Rs. 250 million as against their production of Rs. 153.4 million in 1970-71 and Rs. 103.2 million in the preceding year. The production is exclusive of import off-loaded and equipments manufactured by ancillaries.

In a single month i.e. February 1972 the Corporation registered a record production of 2060 tonnes of mechanical equipment worth Rs. 26.8 million.

The equipment required for the first blast furnace of Bokaro has been supplied by the Corporation but for small quantum of 607 tonnes of spares or rolling stocks which were not meant for erection of the furnace. They hope to complete all requirements of the Bokaro's first stage of 1.7 million tonnes capacity by December 1972.

The Corporation have to their credit the indigenous manufacture of a hot slab buggy for Bokaro for the first time in the country. One such buggy save the country about Rs. 1.6 million in foreign exchange and 5 such buggies are to be set up at Bokaro for the latter's slabbing mills. The buggy already supplied weigh 105 tonnes and was capable of transporting 128 tonnes of hot slabs from the piling table to slab yard. The Corporation is now, nearing completion in the production of a Spherical Vessel for an oil refinery in Bombay, weighing 148 tonnes with the storage capacity of 613 tonnes of liquified petroleum gas and would save Rs. 800,000 in foreign exchange.

PROPOSAL TO SHIFT INNOCENTI PROJECT

An Italian firm, M/s. Innocenti have offered to shift their machinery to India to manufacture cars and also offered manufacturing equipment for scooters including the latest designs. The Italian firm is agreeable to offer their world rights for the sale including the trade name 'Lambretta' to an Indian company and will allow the latter to export scooters. The plant and machinery to be shifted is valued at $ 2 millio Part of this equipment valued at $ 0.4 million is to b supplied against the issue of shares to the Italian firm The remaining $ 1.6 million worth of equipment i proposed to be given on a seven-year credit at 6 pe cent tax-free interest.

The proposal to export is to supply 40 per cent overseas of the annual capacity of 100,000 scooters. Th foreign payment to be made to the Italian firm by th Indian company is to be made out of the expor earnings.

Of the Indian company, the Central Governmen will hold 51 per cent and the Italian firm is to hold 21 per cent, the balance will be held by M/s. Automobile Products of India who are Indian manufacturers of Lambretta scooters.

The National Industrial Development Corporation have favourably assessed the adequancy of the equipment offered by the Italian firm and the relative techno-economic factors in setting up the plant with machinery to be shifted from M/s. Innocenti.

IMPORT CONTRACTS CONCLUDED FOR SCARCE PRODUCTS

The Minerals and Metals Trading Corporation, New Delhi have signed an agreement with Democratic People's Republic of Korea for import of 350,000 tonnes of zinc. Under the agreement the exporter is to complete delivery by August, this year.

The MMTC have also concluded a contract with Poland for import of 120,000 tonnes of urea. In addition to this firm quantity to be imported, there is a provision for an optional quantity of 40,000 tonnes also to be imported under the Agreement.

Two more contracts were concluded by the Corporation with the Soviet Union one for import of 80,000 tonnes of urea (firm quantity) plus 20,000 tonnes of optional quantity and the other for import of 20,000 tonnes of Muriate of Potash. The Indian Oil Company concluded the agreement for import of 500,000 tonnes of kerosene from the Soviet Union. The agreement covers supplies up to December 1972.

RECORD TRAFFIC HANDLING AT MARMUGAO

The Marmugao port handled a total traffic of 11.5 million tonnes in 1971. The port's traffic was only 5.4 million tonnes in 1962, which totalled to 10.8 million tonnes in 1970 further rising to 11 million tonnes in the financial year 1970-71.

Marmugao has been during the last three years the second biggest port in India with annual traffic tonnage outranked only by the port of Bombay and the total traffic in 1970-71–10.36 million tonnes in iron ore exports (the highest so far showing an increase of 0.86 million tonnes over 1970), 0.7 million tonnes in other ores particularly manganese ore, 59,000 tonnes in oil cake exports, the balance of 0.42 million tonnes consisting of import traffic, mostly of coastal nature.

The new traffic record of Marmugao port was in spite of the dislocation of loading operations during the recent hostalities.

LEAD AND COPPER DEPOSITS IN ANDHRA PRADESH

Reserves of 15 to 17 million tonnes of lead and copper are estimated to exist in Agnigundala lead copper deposits in Andhra Pradesh. According to Geological Survey of India, three blocks at Bandalamottu, Nallakonda and Dhukonda contain 10 million tonnes of lead ore and about 5 to 7 million tonnes of copper ore. Project report of commercial exploitation of these deposits is being prepared.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL PROGRESS

AUTOMATIC PREPARATIVE GAS CHROMATOGRAPH

The Chemistry Division of the Bhabha Atomic Research Centre, Bombay have designed and fabricated an advanced type of automatic preparative gas chromatograph. The centre has over the years built considerable expertise in the field of gas chromatograph.

Gas chromatography is a means of detecting and separating the different constituents of a complex volatile mixture. With the high efficiency of this method, even extremely complex mixtures containing scores of different constitutes can be processed and the components separted quickly. The know-how is of immense value to scientists engaged in the research work in the area of flavours, biochemistry, food odours, perfumes, pharmaceuticals and drugs.

An imported complex instrument of this type would have cost about Rs. 75,000 in foreign exchange alone. The unit developed by the Centre uses less than Rs. 500 worth of imported components excluding the recorder.

The Centre have offered knowhow and technical guidance with indigenous manufacture of the chromatograph.

IRON POWDER FROM MILLSCALE

The Central Electrochemical Research Institute, Karaikudi (Tamilnadu) has developed a process to produce iron powder from millscale by direct reduction technique. The method of producing powder from millscale so far has been by thermal reduction at high temperature. The imporved process developed by CECRI is by direct reduction of the mill-scale in the solid phase by keeping it as a sediment in alkaline electrolyte on a suitable cathode substrate.

The insoluble anode is kept immersed in the free electrolyte above the sediment of the oxide. The process of direct reduction offers the following advantages. This eliminates intermediate steps of bringing the iron compound into solution and electrolysing subsequently; avoid handling large volume of solution; the process is simple to operate without involving control of different parameter and the particle size of the end product can be largely controlled by the particle size of the starting material.

Iron powder finds wide application in the production of welding electrodes, flame cutting and sintered metal components. In the manufacture of chemicals, it is used as a reducing agent. Mill-scale produced during rolling operations in steel rolling mills is the main raw material for the manufacture of iron powder.

VIBRATION PICKUP

Two types of vibration pick-up, the contact type and the contactless type and two types of vibration meter, type 500 to be used with the contactless type vibration pickup (type MV) and type 501 to be used with contact type pickup (type GMV) have been developed at the National Aeronautical Laboratory, Bangalore.

The contactless type vibratian pickup consists of a cylindrical soft iron core, on which a large number of turns of fine wire are wound to form a coil. Two circular flat ferrite magnets are fixed on either end of the core. The whole assembly is placed in a cylindrical brass housing such that one end of the housing has flat side of the ferrite magnet exposed. The other end of the housing contains fixtures for the output coaxial cable.

The pickup is a self generating, electromagnetic sensor for vibration analysis designed to measure the relative amplitude and frequency of vibration without contact between transducer and the moving surface. The instrument is basically employd in the measurement of strain vibration, force and thrust.

The contact type pickup consists of seismic mass suspended by a spring in front of ferrite magnet which is fixed to the casing and has a coil wound around it. When the pickup is mounted rigidly on the vibrating structure, the relative motion between the magnet and seismic mass induces voltage in the coil. The motion of the seismic mass is oil clamped. This is self generating electromagnetic sensor designed to measure velocity and displacement. These pickups can be used in the measurement of vibration and control systems.

Type 500 consists of a transistorised A. C. amplifier, a frequency meter and regulated power supply. The amplifier, output is rectified and fed to a 114 mm dial panel meter which indicates the relative amplitude or frequency of vibration. Analog signal output terminals are provided for recording with an oscillograph or oscilloscope. Vibration meter type 501 has the additional feature of measuring average velocity (in/sec) peak, to peak displacement (mils) and frequency (c/s) directly when used with contact type vibration pickup Type GMV.

FRP MATERIALS

In recent years, FRP materials have emerged as new engineering materials with many advantages over conventional ones. Their main advantages lie in their high strength to weight ratios, resistance to corrosion, good insulating properties, low tooling costs, non-magnetic nature and better cryogenic properties. Because of these plus points, FRP is now used in, apart from structural applications, the electrical and electronic industries for making insultation, printed circuit boards, etc.

The Materials Science division of National Aeronautical Laboratory, Bangalore, has undertaken to develop these new materials in view of their applications to aerospace engineering. It has done considerable work in this field and developed competence in the winding of FRP cylinders and pressure vessels. It has developed three filament. winding machines-the largest one is capable of winding cylinders and pressure vessels up to a maximum diameter of 60 cm. and length of 220 cm-for making a variety of components for aerospace, electrical, electronics and chemical industries.

The division has acquired competence in handlay and pressure moulding techniques. A number of test rigs for flow studies in wind tunnels such as, diffuser models, wind tunnel contraction were set up by using hand lay process which has resulted in foreign exchange savings.

Some of the FRP components designed and made in the Division on specific requests from industry and other organisations are : nosecones for weather rockets, high voltage insulators for circuit breakers, antennas, antenna masts, accurate parabolic radar dishes for communication system, 6m diameter radomes (which are transparent to radio waves and which can withstand winds up to 300 kmph) for cyclone warning radars, piston rings and planar digital display block by dough moulding process. It is proposed to produce the spark erosion machines also in the pilot plant.

NEW AGRICULTURAL RESEARCH STATION

An Agricultural Research Station to promote farming in hill districts of U. P. will shortly be set up in Kumaon region by Pant Agricultural University. The new station is expected to help three million hill farmers in 6 districts of U. P.

According to a survey conducted by the university Himalayan foot hills offer great scope for modern agricultural development. It is found that in the valley area up to a height of 1220 metres certain varieties of high yielding wheat and rice can be successfully grown.

GEMS AND JEWELLERY

Gem and jewellery articles provide one of the most remarkable examples whereby the inherited skills and traditional craftsmanship of Indian artisans are converted into foreign exchange earners. The simplest tools are employed by the industry to create exquisite works of art representing the best and highest traditions which find ready acceptance in international markets.

In India Golconda in olden times was world famous for the finest specimens of diamonds in the world. At the present time, the Panna Mines in Madhya Pradesh and the Wajra–Karur fields in Andhra Pradesh provide the sources from which rough diamonds of gem quality and for industrial uses are drawn. The development of mining is looked after exculusively by the National Mineral Development Corporation. Surat and Navsari in the Gujarat State are famous centres for cutting and polishing of diamonds in India.

The output of diamonds during 1970-71 amounted to about 19,000 carts while it amouned to about 15,470 carats in 1969-70 and 7450 carats in 1968-69.

The Diamond–mining project at Panna in Madhya Pradesh organises two schemes, one at Ramkheria for an annual output of 11250 carats and another at Majhgawan for an annual ouput of 12000 carats. The Majhgawan mine expansion scheme envisages that the production capacity of the mine should be raised to 45,000 carats eventually. A new belt about 180 metres in diametre has been located near Majhgawan.

The diamond investigations in Andhra Pradesh commenced in mid-1968 and till recently confined to the conglomerate deposits in the Kurnool district. Another area taken up for development is in Anantpur district.

The National Mineral Development Corporation has been entrusted with import of rough diamonds for providing raw material to the artisans engaged in the cutting and polishing of diamonds in the country for the purpose of re-export in finished form.

Fine semi-precious stones, including garnets, have been mined in Ajmer and parts of Rajasthan. Mysore and Andhra Pradesh have mines of rubies, acquamarine, amethyst and several other semi-precious stones. The area surrounding Kangayam and Karur in Tamil Nadu is the chief centre of gem-stones mined in that State, including amethyst, acquamarine and kakanilam (Blue Sapphire). The famous Indian star ruby and green aventurine are produced in Mysore. Synthetic gem-stones are produced in Tamil Nadu.

Jaipur in Rajasthan is famous throughout the world as the finest cutting centre for emeralds mined in the Udaipur and Ajmer districts of that State. Cambay in Gujarat is well-known for its unique cutting of

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rubies and sapphires. Tiruchirapalli and Madras in Tamil Nadu are known centers for cutting rubies and synthetic and semi-precious stones of all kinds. Patdhari, Varanasi, Cuttack, Lucknow, Calcutta, Kashmir, Agra and Moradabad are all famous for exquisite silver filigree works. Rajpipla, Ajmer, Hyderabad, Cambay and Jaipur are well-known cutting centres for semi-precious stones. Bombay and Jaipur enjoy startegic positions as world trade centres of gem-stones in bulk. Surat and Bombay likewise hold a monopoly in treating trading and exporting of pearls.

Efforts are underway to further improve the production of the industry. The National Mineral Development Corporation is exploring indigenous sources of gem stones and diamonds. Similarly the Gem and Jewellery Export Promotion Council, Bombay, has a number of development programmes on hand to give fillip to the industry. These programmes include the setting up of a gem testing laboratory at Jaipur and a training school for artisans at Surat/Navsari for improving the polishing.

The gems and jewellery industry has already emerged as one of the prominent export oriented industries of India. Exports have more than quadrupled from Rs. 100 million in 1965-66 to Rs. 446.4 million in 1970-71.

Of this the share of diamonds cut and uncut was around Rs. 282.6 million while that of other precious stones was Rs. 118.2 million. Export of pearls and synthetic stones amounted to Rs. 10.3 million and Rs. 7.7 million respectively. Jewellery items valued at Rs. 27.6 million were also exported.

A significant rise has been registered in the export of cut and polished diamonds. The export of diamods is now to the tune of about Rs. 290 million per annum as against Rs. 50 million a few years back. Indian cut polished diamonds which till lately found their way to international markets through Belgium are now going directly to countries like Hongkong, Japan, U.S.A. and West Germany,

In the first six months of 1971-72 (April-September 1971) exports of gem and jewellery items amounted to Rs. 260.05 million as against Rs. 229.09 million in the comparable period of 1970-71.

Natural and cultured pearls worked an unworked accounted for Rs. 10.94 million. France, Fedaral Republic of Germany, Hong Kong, Japan, Switzerland, U.K., U.S.A., U.S.S.R., Austria, Dubai, Lebanon, Qatar and Singapore were the major purchasers. Cut diamonds had a share of Rs. 165.15 million while uncut ones earned Rs. 617, 658. The main destinations for diamonds were Belgium (Rs. 49.24 million), Hong Kong (Rs. 42.88 million), U.S.A. (Rs. 24.21 million), Japan (Rs. 10.22 million), Netherlands (Rs. 8.88 million), Singapore (Rs. 5.79 million), Israel (Rs. 5.35 million), U.K. (Rs. 4.73 million), Australia (Rs. 2.44 million), Federal Republic of Germany (Rs. 2.15 million), France (Rs. 2.08 million) and Switzerland (Rs. 1.36 million).

The export value of other natural precious and semi-precious stones was of the order of Rs. 69.87 million. Here again countries like France, German Federal Republic, Hong Kong, Japan, Switzerland, U.K. U.S.A. and Lebanon were the major markets. Synthetic precious and semi-precious stones with overseas supplies worth Rs. 1.10 million were mainly directed to Singapore which accounted for more than half of the total exports of this item.

Jewellery items worth Rs. 12.37 million were also exported during the first half of 1971-72. Of this, gold and silver jewellery accounted for Rs. 4.84 million while imitation jewellery had a share of Rs. 7.53 million. ☐

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TURNKEY ORDER FOR INSTRUMENTATION

Measuring, controlling and scientific instruments from India have created a name for themselves in overseas markets in recent years.

M/s. Instrumentation Limited, Kota, a leading manufacturer of instruments have secured a Rs. 15 million order on a turnkey basis from Malaysia. The contract from the National Electricity Board of Malaysia is for design, supply, installation and commissioning of instrumentation schemes for a thermal power station in that country. This is the first time that the undertaking has received an order for a turnkey project outside India.

Earlier the Kota unit has exported some of their products to countries in South East Asia and West Asia.

M/s. Instrumentation Limited have already established its reputation for their products and services in domestic market for process industries including steel nd chemical plants.

Commencing its commercial production in 1968, the plant manufactures transmitters (thermocouples and thermometers), magneto electric instruments, panels and control desks. The undertaking has made good headway in substituting imported components with indigenous ones with the help of the progress made in research and product development. By way of diversification the unit has taken up the production of peneumatic instruments.

During 1970-71 the Kota factory turned out a large number of instruments of a value of Rs. 37.5 mllion. The unit is currently making 80 different kinds of instruments as against 9 initially intended.

The total production of industrial process control instruments in the country registered a 140 per cent increase between 1968 and 1970. From Rs. 24 million worth in 1968 output rose to Rs. 32.3 million in 1969 and to Rs. 57.2 million in 1970. Continuing this production uptrend the 9 large scale units engaged in the line is estimated to have turned out instruments worth Rs. 67.68 million in 1971. The installed capacity for such instruments is of the order of Rs. 129.2 million.

In the export field too the industry is active and the performance improved by Rs. 5.61 million (nearly 65 per cent) in 1970-71 as compared to 1969-70. The export supplies in these two years stood at Rs. 14.22 million and Rs. 8.61 million. In the first half of 1971-72 exports amounted to Rs. 7.72 million as against Rs. 4.67 million in the corresponding period of 1970-71.

EXPORT TRADE IN COTTON TEXTILES

Indian exports of various items of cotton textiles have registered improvement during the recent years. India's share in the world trade in cotton piecegoods alone, which constitute bulk of the exports, has been between 8 to 10 per cent in the past few years.

The varieties of cotton cloth that constitute the bulk of the exports are sheetings, voils, mulls, drill, longcloth and shirtings. Over the years, the country has improved its unit price realisation in exports.

Exports of mill made cotton textiles, yarn etc. amounted to Rs. 1044.8 million in 1971. Cotton piecegoods earned Rs. 646.5 million and cotton apparel had a share of Rs. 90.14 million. Exports of handkerchiefs, towels and furnishings stood at Rs. 8.6 million, Rs. 45.5 million and Rs. 0.6 million respectively. Hosiery exports were of the order of Rs. 1.8 million.

A leading exporting firm M/s. Bombay Dyeing and Manufacturing Company Ltd., Neville House, Ballard Estate, Bombay have improved their exports to Rs. 54.8 million in 1971 from Rs. 49.2 million in 1970. The improved performance was mainly due to better offtake of finished goods by Australia, New Zealand and U.K.

The company is now considering modernisation by the replacement of old looms by new ones which will result in better production output in the coming years.

OVERSEAS DEMAND FOR FOOTWEAR

The rising export trend in footwear is evident from the performance of the industry in 1971. The export value in that year was higher at Rs. 120 million as against Rs. 95 million in 1970.

In 1971 U.S.S.R. absorbed footwear worth Rs. 35.7 million as compared to Rs. 26 million in the previous year. U.S.A's share was Rs. 25.6 million as against Rs. 20.4 million. Other important destinations were U.K. Rs. 6.12 million and Australia Rs. 5.5 million.

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One of the exporting units, M/s. Aeroplane Shoe Factory, Gurdwara Road, Karolbagh, New Delhi-5 have a firm export order from U.S.S.R. for 250,000 pairs of leather footwear at a value of Rs. 8.6 million. The delivery is to be effected by November 1972. Besides the Soviet order, the firm has received enquiries from importers in U.S.A. and Canada,

Taking cognizance of the changes in international fashion trends, the firm is continuously evolving new designs and styles. To improve production a mechanised unit is also being set up by the end of the current year.

Another exporting firm M/s. Kamsons, 267 Netaji Subhas Chandra Bose Road, Madras–1 have standing orders for 500 pairs of closed men's shoe uppers, 350 pairs of closed cow-boy boot uppers, 1500 pairs of ladies sandals and chappals and 1500 pairs of Kolhapuri chappals. The total value of the orders received from Canada, British Colombia and U.S.A. is of the order of Rs. 55,000.

In addition, the firm has received enquiries for trial supplies ranging from 300 pairs to 1000 pairs from such countries as Netherlands, Nigeria, Canada and U.S.A. The items covered are men's shoes and sandals, cut soles, closed uppers for men's shoes, Kolhapuri chappals, ladies sandals and chappals, football boot etc. and the value is approximately Rs. 105,000.

The Madras firm is having additional production capacity to the tune of 100 pairs per day of closed uppers for men's shoes, 50 pairs per day of men's shoes, 100 pairs of men's chappals and 100 pairs of women's chappals and can execute further export orders too.

To increase the production capacity further a new footwear manufacturing unit is being set up with an initial capacity of 200 pairs per day and ultimate capacity of 500 pairs per day of men's shoes with leather uppers, leather, rubber and PVC and soles by the stuck-on-process. The proposed unit will also manufacture initially 200 pairs of men's and 200 pairs of women's chappals.

Entering into collaboration with Rumania the firm is setting up another unit for the manufacture of gloves, garments and upper leathers from goat and sheep skins. The entire output of the tannery will be lifted for export.

ELECTRIC FURNACE TO EAST AFRICA

The growing volume and range of engineering products exported from India in recent years is indicative of the sustained effort made by individual manufacturing units. New markets and new products are continually added to the export stream.

As against Rs. 1064 million in 1969-70, engineering products raised its export earning to Rs. 1166 million in 1970-71. In the first ten months of 1971-72 (April 71-January 72) export supplies brought in Rs. 1004.6 million.

To the chain of new products put on the export line, electric art melting furnace has also been added now. A furnace of 10-12 tonnes capacity valued at Rs. 1.9 million is to be supplied to a firm in East Africa. Two thirds of the equipment have already been shipped by the Indian firm M/s. Hindustan Brown Boveri Ltd., Thackersey House, Graham Road, Ballard Estate, Bombay-1.

The transformer for the arc furnace has been supplied by M/s. Emco Transformer Ltd., 94, Meadows Street, Bombay-1.

The high voltage furnace transformer is of 4150 KVA continuous rating, 11 KV class with oil forced water cooling giving a short time rating of 5000 KV for two hours.

SCOURING POWDER TO U.S.S.R.

India will export 600 tonnes of scouring powder to U.S.S.R. at a value of Rs. 1.08 million. The export agreement has been entered into by the State Trading Corporation of India, New Delhi.

The supplies are to be effected between July and September, this year.

AWARD FOR EXPORTS

M/s. Tata Exports, Bombay have won the award of Federation of Indian Chambers of Commerce and Industry for outstanding export performance during 1971.

The company's exports during 1970-71 totalled over Rs. 240 million. Engineering products accounted for over Rs. 130 million. The exports included readymade garments, chemicals, sea food, consumer products and mango juice.

M/s. Tata Exports have also been recently selected by the Government of India for the National Award for outstanding export performance.

EXPORT PERFORMANCE AND POTENTIAL

INDO-BANGLA DESH TRADE AGREEMENT

The trade agreement between India and Bangla Desh signed recently envisages a three tier system. The agreement has provided for a two-way balanced trade turnover of Rs. 500 million.

The border trade arrangement would facilitate trade in perishable commodities and articles of daily use among people living in the border areas of both countries. These facilities will be available to persons holding special permits living within sixteen kilometres of land frontiers and will take care of day to day essential requirements of the people.

To meet the transitional needs, the two Governments have agreed to an interim arrangement under which import and export of commodities and goods of special interest to the two countries will be facilitated on balanced basis by both sides. Exports from India to Bangla Desh will cover cement, coal, asphalt, spare parts for machinery, pharmaceuticals, cotton textiles, cotton yarn, unmanufactured tobacco, spices, ayurvedic and unani medicines, books, gramophone records, cinema films, etc. The list of items for import into India from Bangla Desh include fresh fish, semitanned hides and skins, newsprint, furnace oil, raw jute, kapok, pharmaceuticals including ayurvedic and unani medicines, books and periodicals cinema films etc. The agreement provides for special banking and financing arrangements to give effect to the balanced trade.

The imports and exports in excess of the values specified in balancing arrangement and commodity and goods not covered by it shall be permitted in accordance with import, export and foreign exchange laws, regulations and procedures in force in either country from time to time.

RISING EXPORTS OF CASHEW

Exports of cashew kernels showed a 25 per cent increase during the eleven month period April 71-February 1972 as compared to the corresponding period of 1970-71. Valued at Rs. 577.4 million exports touched 56,823 tonnes as against 45,334 tonnes at Rs. 471.3 million exported during April 70 - February 1971.

Among the countries with increased offtake, U.S.A., accounted for 26,247 tonnes in April 71-February 1972 as against 20,675 tonnes in April 70-February 71, U.S.S.R's intake amounted to 17,349 tonnes as compared to 12,840 tonnes while Canada raised imports to 3651 tonnes from 2116 tonnes. Imports by U.K. went up to 1669 tonnes from 1010 tonnes, Japan's to 1235 tonnes from 746 tonnes and Australia's to 1183 tonnes from 1075 tonnes. Countries like Netherlands, Hong Kong, Czechoslovakia and Federal Republic of Germany too raised their offtake in the period reviewed.

In the case of cashew shell liquid, exports went down to 5141 tonnes at Rs. 5.77 million in April 71-February 72 from 6120 tonnes at Rs. 692 million in April 70-February 1971. The reduced performance was due to reduced imports by U.S.A. However, U.K. increased the import to 2731 tonnes from 2339 tonnes.

Import of raw cashew nuts into India during the eleven month period of 1971-72 was of the order of 146,249 tonnes valued at Rs. 242.7 million. During the corresponding period of 1970-71 import stood at 150,557 tonnes valued at Rs. 263.3 million.

EXPORT PERFORMANCE OF CHEMICALS

In the first eleven months of 1971-72 (April 1971-February 1972) export of basic chemicals, pharmaceuticals, soaps and essential oils amounted to Rs. 285.85 million.

Drugs, pharmaceuticals and fine chemicals (excluding medicinal castor oil) fetched Rs. 82.66 million. Inorganic chemicals had a share of Rs. 31.05 million while organic chemicals brought in Rs. 6.72 million. Exports of agrochemicals and processed talc were of the order of Rs. 0.72 million and Rs. 2.13 million respectively.

Improving their performance over the previous year's comparable period, export of dyes, intermediates, alcohol and coal tar chemicals amounted to Rs. 39.02 million as compared to Rs. 34.28 million. Salt exports went up to Rs. 8.89 million from Rs. 4.92 million. The export improvement of glycerine, soaps, detergents, cosmetics and toiletries at Rs. 23.79 million is noteworthy as compared to the exports at Rs. 19.58 million in the corresponding eleven months of 1970-71. Agarbattis too improved their performance to Rs. 12.19 million from Rs. 11.94 million.

Essential oils had a foreign exchange earning of Rs. 30.29 million while crude drugs brought in Rs. 43.36 million. Export of some other minor chemicals totalled to Rs. 2.03 million.

Alcohol exports amounted to Rs. 5.8 million in the period reviewed and Japan was added for the first time to the export destinations for this item.

The major buyers of Indian chemicals are the U.K., U.S.A., West Asian, East African and Asian countries.

The important chemical and pharmaceutical items that are active in the export trade are anti-diabetic drugs, absorbent cotton wool, potassium citrate, beta ionone, berberine, hydro-chloric acid, sulphuric acid, nitric acid, zinc sulphate, oxalic acid, methanol, trichloro ethylene, talcum powder, synthetic detergents, hydrogenated castor oil, salt, agarbattis etc.

HANDLOOM EXPORTS
BETTER PROSPECTS

The trade and consumer demand for a variety of handloom clothing displayed at the Indian Industrial and Trade Exhibition in Lagos (Nigeria) indicate that the pattern of handloom exports to that country might get diversified. So far Nigeria's main imports in the line are Madras handkerchiefs.

Many Nigerian firms have evinced keen interest in several items like crepe, seer sucker, shirts, silk stoles, furnishings and silk dress material. About Rs. 500,000 worth of trial orders are likely to materialise soon. Nearly 50 items of dresses modelled at a fashion show have also been sold during the currency of the Exhibition.

In the first ten months of 1971-72 (April 1971–January, 1972), exports of handloom goods amounted to Rs. 183.67 million. Of this, cotton handloom fabrics of standard type including bleeding Madras, Real Madras handkerchiefs, lunghies and sarongs, dhoties, sarees, and shirtings amounted to Rs. 63.35 million. The export value of cotton handloom non-fabrics including carpets and durries, bedsheets and blankets, pillowcovers and table cloth and towels, and napkins amounted to Rs. 38.60 million. Cotton handloom readymade garments were exported to the tune of Rs. 21.05 million in April-November 1971. Silk fabrics including mulberry silk fabrics, and tassar silk fabrics were supplied overseas at a value of Rs. 59.75 million. The handloom woollen fabrics including woollen and worsted fabrics and woollen blankets fetched Rs. 0.75 million.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

FERROUS INDUSTRIES

PRODUCTION TREND

The ferrous casting industries are priority industries and they are the basic component feeder industries meeting the needs of other engineering sectors such as railways, automobiles, machinery, tools etc. The various items of production by the ferrous industries are cast iron pipes (spun cast and sand cast), shots and grits, cast iron castings (including alloy iron castings), malleable iron castings, S. G. iron castings, steel castings (including alloy steel castings) and precision investment castings.

After a period of recession the cast iron spun pipes industry has picked up production in 1971 and registered a 9 per cent increase over the 1970 output. With an installed capacity of 414,000 tonnes the actual production of spun cast pipes was 190,000 tonnes in 1971 as against 176,670 tonnes in 1970. Similarly output of sand cast pipes went up to 9610 tonnes from 7515 tonnes.

In the case of cast iron castings too, there was a notable production uptrend in 1971 to the extent of about 43 per cent. The 47 manufacturing units with an installed capacity of 328,000 tonnes per annum turned out nearly 114,500 tonnes of castings in 1971. The 1970 production was of the order of 80,000 tonnes and the installed capacity was 254,000 tonnes with 43 manufacturing units in the line.

The industry which was in the past mainly producing sleepers and manhole covers have now taken up the production of other items required by various engineering industries.

The capacity for manufacture of alloy iron castings is mostly installed within the existing capacity of cast iron castings. Production of this item requires special techniques and critical attention. In view of the growing demand in the country for alloy iron castings, special attention is being paid for the development of this item separately under the revised licensing policy.

Production of malleable iron castings registered a 54 per cent increase in 1971 as compared to 1970. The 11 units in the production stream with an actual output of 24,000 tonnes in 1971 exceeded the installed capacity of 22,100 tonnes. The 1970 production was of the order of 15,600 tonnes.

The production of S. G. iron castings has improved in 1971 due to the heavy orders placed on the industry by the Railways for S. G. iron axle box bearings. The output in 1971 at 2300 tonnes was a 60 per cent increase over the 1970 production at 1450 tonnes. The installed capacity in 1971 was of the order of 7800 tonnes. Due to the special manufacturing techniques in the production of S. G. iron castings, full utilization of the installed capacity is expected to materialise after some more time.

With a marginal improvement of 7 per cent, the production of steel and alloy steel castings stood at 56,000 tonnes in 1971 as against 52,000 tonnes in 1970. The installed capacity of the 43 units in the line is of the order of 137,000 tonnes. The units of this industry have now diversified their production range to meet the demands of various engineering industries. Some of the units have taken up the manufacture of alloy steel castings.

In view of the special requirement of equipment and technology for production of alloy steel castings, specific attention is now being paid for the development of this item.

Precision investment castings is a field of special ferrous castings required by defence instruments industry, aeronautics etc. There are at present only two units which have gone into trial production in 1971.

In the case of shots and grits there was a down trend in production in 1971. From 3108 tonnes in 1970, output went down to about 2800 tonnes in 1971. The installed capacity is 7400 tonnes.

The ferrous castings produced in the country have led to the substitution of imported components of various machinery, machine tools, automobiles, agricultural implements etc.

The railway wheel bogies which were previously fabricated from steel sections are now replaced by cast steel bogies. Similarly axle box bearings which were previously made out of non-ferrous material (bronze) are now replaced by S. G. iron bearings manufactured in the country resulting in considerable foreign exchange savings. Some of the automobile components which were basically forged items and in some cases imported, are now replaced by indigenously produced S. G. cast iron and malleable iron castings.

Effective steps have been taken to meet the shortage in the supply of such raw materials as graphite electrodes, ferro silicon, refractories and materials and heavy melting scrap which are not manufactured indigenously in sufficient quantities. Canalised imports have been resorted to in respect of these raw materials.

Besides meeting the growing internal demand the ferrous industries have considerable contribution to the export earning of the country.

Cast iron products such as manhole covers, pipes and fittings, tanks, scissors, spun pipes and fittings, valves and other products earned as much as Rs. 39.69 million through overseas supplies in 1970-71. In 1969-70 the export value of these items was of the order of Rs. 24.50 million. In these two years malleable iron castings more than doubled their export performance to Rs. 7.03 million from Rs. 3.30 million.

Cast iron products were mainly directed to Kuwait, Hong Kong, Kenya, Singapore, U.S.A. and Tanzania. Malleable iron castings were popular in such markets as Czecholsovakia, Hungary and others.

Export of steel castings was of the order of Rs. 6.44 million in 1970-71 as against Rs. 2.74 million in 1969-70. A.R.E., Sudan and Iran were the major destinations in 1970-71 for steel castings from India.

Besides direct exports, castings find export outlets as components of machinery, automobiles, wagons etc.

PRODUCTION RISE IN LIGHT MECHANICAL INDUSTRIES

Recovering from a shortfall in production in 1970, the sewing machine industry with five manufacturing units and an installed capacity of 493,000 numbers turned out 337, 630 numbers of sewing machines in 1971 as against 177,960 numbers in 1970. This represents a production increase of nearly 90 per cent.

Starting wayback in 1936 the sewing machine industry over the years was having a steady growth in production. In the beginning of the First Plan (1951) the production in the organised sector was of the order of 37,500 numbers per annum which increased to 110,000 numbers by the beginning of the Second Plan (1956). In the next five years the production went up to 303,000 numbers.

Import substitution in the sewing machinery Industry is a continuous process. Import of components for domestic sewing machines was allowed at a rate of Rs. 10 per pack in the beginning of First Plan (1951) which was reduced to Rs. 8 in the Second Plan (1956) and to Rs. 3 in the Third Plan (1961). Due to the development of the indigenous components for domestic sewing machines, import has been completely banned since the last five years. Import of raw materials too has been gradually reduced in view of their indigenous availability.

The sewing machine industry currently has reached an advance stage of development both in the large and small scale sectors. The orgainzed sector manufactures domestic as well as industrial sewing machines.

The demand for sewing machines by the end of 1973-74 is estimated to touch 600,000 numbers and the industry can meet the entire demand for sewing machines.

In the organised sector 4 units are manufacturing typewriters. The total licensed capacity of these units is 86,400 numbers per annum. The actual production in 1971 which was of the order of 43,692 numbers indicated a 13.4 per cent increase over the 1970 production of 38,525 numbers. Capacity expansion in the industry is also under consideration. Letters of intent have been issued to 4 units for manufacuring standard, portable and electric typewriters for a total capacity of 69,600 numbers per annum. Besides these, another scheme is also under consideration for the manufacture of 20,000 numbers of standard typewriters.

Currently one firm is manufacturing duplicators in the organized sector. The production of this firm is completely based on indigenous components. A new model duplicator has also been taken up for production during 1971 which has been approved by the Government with export conditions. The installed capacity for duplicators has gone up from 7,500 numbers in 1970 to 10,100 numbers in 1971 and the actual production too, rose to 4,615 numbers in 1971 from 3,370 numbers in 1970.

With one unit in the production line and an installed capacity of 870 numbers the production of addressing machines stood at 837 numbers in 1971 as compared to 673 numbers in 1970 which is a 24.3 per cent production increase. With an installed capacity of 14.4 million numbers, the actual production of sewing machine needles in 1971 was of the order of 13.22 million numbers. This was a 7.5 per cent increase when compared to 1970 output of 12.29 million numbers. Production of zip fasteners was around 2.9 million metres in 1971 which was lesser by about 600,000 metres when compared to 1970 outturn. Production of umbrella ribs too had a marginal decline in 1971 as compared to 1970. The actual output in these two years were of the order of 496,873 dozen sets and 546,422 dozen sets respectively. The installed capacity for this item is 740,000 dozen sets. Nearly 875.5 tonnes of wire gauge and wire nettings were turned out by the four units in the production stream and their installed capacity stood at 2426.26 tonnes.

In the sphere of import substitution a progressive elimination of imported components with indigenous ones is being made in the typewriter industry. One unit has commenced production of steel type which is one of the important components of typewriters and they have already supplied a portion of the requirements to some of the manufacturers. It is expected that the unit may be in a position to supply approved steel types to all the typewriter manufacturers in a larger quantity within a short time. With the development of this component in the country there will be a saving of foreign exchange to the tune of Rs. 1 million per annum. In the case of duplicators the manufacturing unit which has indigenised the production completely has made it possible to have a foreign exchange saving of Rs. 600,000 per annum.

Sewing machines, typewriters, duplicators etc. have made good headway in export markets in recent years. Sewing machines particularly has a notable contribution in the export field. From Rs. 2.2 milion in 1965-66 exports reached a figure of Rs. 7.5 million in 1969-70. However, due to reduction in output, overseas supplies amounted to only Rs. 2.6 million in 1970-71. Reversing this downtrend the industry has again picked up during 1971-72. In the first six months of the year (April 1971 - September 1971) exports of sewing machines, parts and needles have touched the figure of Rs. 3.26 million. While complete sewing machines had an earning of Rs. 1.53 million, parts of sewing machines fetched Rs. 1.33 million. Export of sewing machine needles brought in Rs. 336,000.

The value of typewriters exported during April-September, 1971 was Rs. 228,373 whereas in the whole year 1970-71 this was of the order of 0.94 million. Duplicators had an export earning of Rs. 233,733 in the first six months of 1971-72. During the complete year 1970-71 the export value was around Rs. 0.92 million.

Umbrella ribs worth Rs. 646,555 were exported in the first half of 1971-72 with Burma accounting for nearly Rs. 593,000. Nearly Rs. 1.2 million worth of this item was exported in the whole year of 1970-71.

The export performance of wire gauze and wire nettings of iron and steel, during April-September 1971 was Rs. 555,000 and Rs. 258,890 respectively. These items had an earning of Rs. 861,537 and Rs. 2.15 million respectively in 1970-71.

PRODUCTION OF DIESEL LOCOMOTIVES

During 1971-72, 105 diesel locomotives have been manufactured by the Diesel Locomotive Works, Varanasi.

This was a 54 per cent production increase as compared to the previous year's output of 68 Locomotives.

With this, the workshop has turned out 503 diesel locomotives in the past eight years. Of these 426 were broad gauge and 77 metre gauge locomotives. By way of import substitution the factory has so far saved nearly Rs. 1500 million in foreign exchange.

It is anticipated that in 1972-73, 135 locomotives and in 1973-74, 160 locomotives will be manufactured by the Varanasi workshop.

The indigenous content in the diesel locomotives has also been increasing year after year and it is now 87 per cent.

SELF - SUFFICIENCY IN RICE

India has become self-sufficient in rice production. From 1972 the country will not be importing rice for domestic requirements. During 1970, the country imported only 200,000 tonnes of rice as against 780,000 tonnes in 1965.

According to the latest statistics collected by the Ministry of Agriculture, the average yield of rice has increased from 668 kg. per hectare in 1950-51 to 1134 kg. per hectare at present.

During 1970–71, West Bengal has recorded the highest production of rice by contributing 6.1 million tonnes to the country's output. The highest per hectare yield was achieved in Tamil Nadu which produced 1974 kg. per hectare.

The encouraging performance of achieving self-sufficiency in rice production can be attributed largely to the release of half a dozen high-yielding, short-duration, fertilizer-responsive variety of rice which are adaptable to varying climatic condition in the country.

As to rice stock position, on October 31, 1971 the Central and State Governments had a stock of 1.6 million tonnes.

Over the years, rice production has been increasing steadily. In 1968-69, the production was 30 million tonnes. It rose to 40 million tonnes in 1969-70 and reached an all time record of 43.45 million tonnes during 1970-71.

TELECOMMUNICATION EQUIPMENT
PRODUCTION INCREASE

The Indian Telephone Industries, Bangalore produced over 273,000 telephones during 1970-71 as compared to nearly 245,000 telephones in 1969-70.

The turnover of the company touched Rs. 259 million in 1970-71 marking an increase of Rs. 45 million over 1969-70.

ITI has been exporting telecommunication equipment to Afghanistan, Australia, Belgium, Brazil, Ceylon, Greece, Iraq, Kenya, Kuwait, Malaysia, Nepal, New Zealand, Singapore, Sudan, Thailand, Tanzania, Uganda, U.K. and Zambia. The value of exports till 1970-71 was Rs. 36.6 million.

PLASTICS
AN OUTLOOK

Plastics is a multipurpose material with an ever increasing range of applications. During the First Plan period, the production of plastic raw materials was low and in 1956 output was only 984 tonnes.

Now, with more petrochemical complexes coming up the prospects of the plastics industry are well marked.

The main applications of plastics are in cousumer goods, packaging and to a limited extent in building industry. The industrial and engineering applications are limited.

Plastics consumption in the country has increased substantially during the last decade. The consumption during last 10 years indicates that there is an increase of 23 per cent a year. The consumption of major thermoplastics rose from 10,800 tonnes in 1960 to 35,912 tonnes in 1966 and to 79,380 tonnes in 1970.

Planning for petro-chemicals in the Fourth Plan envisages a sustained growth. The expected availability of major thermoplastics will be as follows :

	Availability by 1973-74
LDPE	70,000 tonnes
HDPE	30,000 ,,
PVC	90,000 ,,
Polystyrene	30,000 ,,

The availability of plastic raw materials will increase rapidly and plastic processing industries will also have increased capacities.

The largest and fastest growing field in plastics application is packaging. The scope is extremely wide ranging from plastic films to larger containers.

Packaging has long been a prime market for polyethylene. Of late however, PVC has been coming into prominence and finding increasing acceptance in various applications. PVC has now an edge over other plastics and occupies a dominant position accounting for about 80,000 tonnes of production.

In India, films and sheets were recently developed. Many of the textile manufacturers are nowadays using PVC films for wrapping, shrink wrapping and skin packaging, industrial packaging such as bags etc. Thermoformed articles are nowadays popular and they have a good market potential. Blown bottles in PVC are being increasingly adopted as a versatile packaging medium.

Rigid PVC products especially pipes have a good demand. In India, commercial production and marketing of these pipes for potable water supply commenced in 1967. Various Government authorities now approve of the use of PVC pipes for transmission of potable water. The ISI has also prepared a detailed standard for rigid PVC pipes.

HEAVIEST CASTING AT HEC

The Foundry Forge Plant of the Heavy Engineering Corporation, Ranchi recently poured 120 tonnes of steel for the heaviest casting made so far in the country.

Three furnaces were synchronised to collect 100 tonnes of steel for the first pouring. Two hours later, another 20 tonnes were poured for feeding the casting.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

COPPER PLATING OF STAINLESS STEEL

Keeping in view the drawbacks of the conventional method of copper plating of stainless steel, investigations were undertaken at Central Electrochemical Research Institute, Karaikudi and a process has been developed successfully. The new process envisages the direct plating of copper on stainless steel from an acidic copper chloride bath being a strike bath followed by a copper build-up from conventional acid copper sulphate bath. The direct plating of copper on stainless steel eliminates the use of nickel coating between substrate and thick copper coating.

The stainless steel utensils, because of non-corrodible nature of the materials, are largely used and preferred to copper and brass vessels. Also, stainless steel vessels take mirror finish and retain it. The periodical tinning of the surfaces is not required as in the case of copper and brass vessels. In spite of these advantages of stainless steel utensils over copper and brass vessels, they are poor thermal conductors of heat and an appreciable amount of heat is lost by radiations. These drawbacks can easily be eliminated, if the surface coming directly into contact with flame or hot plate is plated with copper of a thickness of 0.02".

The new process has been studied on laboratory scale and investigations have been carried out to a vast capacity of 300 litres capable of plating approximately 10-12 vessels at a time. The product is meeting ISI specification.

M. S. tank, M. S. tank PVC lined, copper bushbars and clamps, heaters, rectifiers, air compressor, buffing wheel, grinding wheel, filter unit are the main items of plant and machinery needed in the process.

Sodium hydroxide, sodium carbonate, hydrochloric acid, cupric chloride, sulphuric acid, copper sulphate, nitric acid, anodes, paraffin wax are the various raw materials required. All are available indigenously.

The total capital outlay for putting up a unit capable of processing an area of 7500 sq. cm. per shift of 8 hours a day (about 25 nos. of 20 cm. dia vessels) is estimated at Rs. 169,000. The cost of plating one sq. metre of surface comes to about Rs. 750.

PROCESS FOR JUTE TREATMENT

In recent years use of jute as a decorative fabrics is gaining ground. But its main drawback is its discolouration due to development of yellow to brown colour on exposure to light.

To offset the light susceptibility of jute fibre a chemical treatment process has been developed and patented by the Indian Jute Industries Research Association (IJIRA). This process has helped in the rapid expansion in the use of jute as a versatile decorative and furnishing fabric.

One object of the IJIRA invention is to provide a process of treating jute for imparting a high resistivity against yellowing on exposure to light, which will not be lost even after bleaching by the conventional method. This has been achieved by chemical treatment, confining reactions to the surface layer of the jute leaving the lignin component of the inner layers undistrubed as far as possible, for providing adequate strength both dry and wet.

Treatment conditions ensure that only the portion of lignin present in the surface layer, which constitutes a small fraction of the total lignin and is also responsible for yellowing, is removed, while the major portion of lignin occurring in the inner layer remains practically unaffected.

MOBILE LABORATORIES FOR MINERAL ORE ANALYSIS

The Central Chemical Laboratory of Geological Survey of India has designed and fabricated four mobile laboratories for carrying out several types of quantitative analytical work as well as rapid semi-quantitative geochemical analysis at field sites.

This is the first organisation in the country to deploy such fully self-sufficient mobile chemical laboratories for analysis of minerals and ores at field sites.

These laboratories have been successfully used in many field investigations in difficult areas such as Barmer (Rajasthan), Manipur, Sukinda, Kansa and Sargipal (Orissa) and Himalayan regions.

NEW AMPLIFIER DEVELOPED

A sophisticated multisonic stereo sound system has been developed by M/s. Murphy India Ltd.

The two channel stereo amplifier has a total music power output of 60 watts. The firm is also taking up the production of two other ranges with lower music power output of 30 watts and 10 watts.

The hi-fi speaker system comes in three ranges, three way, four speakers with 12" and 10" high-throw woofers and three way three speakers with 8" high throw woofer. Ultimately five or six types of speaker systems are to be introduced in the market. A two way two speaker srstem is to be taken for production shortly.

At present the sound system has some imported equipment, but in the course of another eight months the firm expects to make the unit completely indigenous. The speaker system which has now 30 to 40 per cent of imported components will also be made fully indigenous within a period of six months.

The company proposes to manufacture 1000 pieces each of the stereo amplifier and the hi-fi speaker system during the current year.

Regd. No. D-26
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In Indian carpets acid-fast and chrome-fast dyes are used according to the requirements of buyers. The very fine quality carpets are chemically washed for obtaining lustre and the true colour on the design. Their backs are signed for uniformity in the texture. Sometimes the carpet weavers also produce the shaggy carpets to meet the demands of certain markets.

Namdahs

The carpet weaving industry in Kashmir has many allied crafts, the most important of which is the namdah handicraft. Namdah is a type of hand-made felt consisting of raw wool and cotton in various proportions according to its grade and quality. Generally in oblong sizes, namdahs may also be oval or round and are mostly embroidered in floral patterns in various colours. Unembroidered felt, cut and tailored makes smaller utility items such as tea-cosies. The craft is quality-controlled and standards laid down, specify raw wool content in felt, composition and minimum admissible embroidery by weight and quality of woollen yarn for each approved grade.

Export Trade

For their fine craftsmanship, fascinating colour and alluring designs Indian carpets outgrow their primary function of floor coverings and become objects of art. But even as floor coverings the carpets from Kashmir, Mirzapur, Bhadhohi and other important centres provide soft graze. With woollen carpets and namdahs, India has stepped into important foreign markets in a big way. The value of exports of woolen carpets, rugs, druggets and namdahs increased from about Rs. 78 million in 1966-67 to nearly Rs. 98 million in 1967-68 and Rs. 111 million in 1968-69. In 1969-70 the value increased to Rs. 117 million and came down slightly to Rs. 109 million in 1970-71. Indian woollen hand made carpets, druggets and namdahs are shipped to a large number of countries but USA, Canada, UK, West Germany and Australia together share between themselves more than 80 per cent of the total exports of carpets. The other major purchasers of Indian carpets and namdahs are Belgium, the Netherlands, France, Sweden and the U.S.S.R. India is one of the major suppliers of hand knotted carpets to the USA. In the year 1968 the total imports of such carpets in the USA amounted to $ 21.57 million of which India's share was $ 3.97 million or more than 18 per cent. In U.K. in 1969 the share of India in total imports of carpets was nearly 12.5 per cent. In Australia, the share in the total imports of carpets is more than 25 per cent while in Canada it is more then 50 per cent.

Quality

The All India Handicrafts Board is taking various measures for the promotion of Indian woollen carpets. They are making available the right type of wool and the colours used in dyeing them and advising the artisans in their correct application. The Borad is also sponsoring a quality control and pre-shipment inspection scheme for carpets and the specifications laid down by the Indian Standards Institution are being made popular. Quality marking schemes for carpets are in operation at various carpet centres in India and a compulsory labelling scheme has also been evolved. ☐

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EXPORT OF ENGINEERING PRODUCTS

The export competence of engineering sector is fully eflected by the growing volume of overseas orders eceived by individual manufacturing and exporting irms.

Among the many export orders received recently, M/s. Cooper Engineering Ltd., 658, J. M. Road, Poona-4, have firm export commitments for the supply f meehanite castings and diesel engines to U.K., udan and Philippines. Valued at Rs. 216,000, the J.K. order for 100 tonnes of meehanite castings is to be ompleted by November this year. The Sudanese order or 50 nos. of diesel engines valued at Rs. 100,000 and he supplies to Philippines of 35 nos. of diesel engines t Rs. 70,000 are to be completed in July-August 1972. These orders have been received by the firm so far uring the current year.

The earlier orders received from these countries nd executed by the Poona company were for 100 onnes of meehanite castings to U.K. at a value of Rs. 216,000, 75 nos. of diesel engines to Sudan and 100 nos. of engines to Philippines at Rs. 175,000 and Rs. 250,000 respectively.

A leading manufacturer of machine tools, diesel engines and pump sets, textile weaving machinery and meehanite castings, the firm has received a large number of export enquiries for their products from various countries in West Europe, Canada, U.S.A., East and West African countries, A.R.E., Sudan, Libya, Ceylon, Philippines, Indonesia, Malaysia, Singapore, Hong Kong, Thailand, South Vietnam, Australia, New Zeland etc. Many of the enquiries are under negotiation and the value is approximately Rs. 30 million.

Taking into account the international requirement, design changes have been effected by the unit in the case of shaping machines, pendant control for slotting machines and textile weaving machinery.

Besides the present production, the company has additional capacity for the manufacture of about 100 nos. of shapers, 20 nos. of slotters, 2 nos. of planers, 5 nos. of vertical turret lathes, 2500 nos. and 250 nos. respectively of vertical and horizontal diesel engines/pump sets, 600 nos. of plain power looms, 150 nos. of automatic looms and 600 tonnes of meehanite castings.

INDIAN BICYCLES TO U. S. A.

The bicycle industry, one of the important light engineering industries of India, has emerged as a good foreign exchange earner in recent years. From 7,573 bicycles worth Rs. 0.80 million in 1959 exports have gone up to 202,504 bicycles at Rs. 24.34 million in 1970-71. Similarly bicycle parts and accessories have also been having a consistent export increase. In 1970-71 the value of such exports was of the order of Rs. 46.33 million.

During the first half of 1971-72 (April-September 1971) 79,735 bicycles were exported at a value of Rs. 9.95 million. Nigeria accounted for 25,608 bicycles worth Rs. 3.16 million. Iran with 16,074 bicycles at Rs. 1.74 million and Indonesia with 12,248 nos. at Rs. 1.64 million were the other major buyers.

As to bicycle parts and accessories, the export value in the period stood at Rs. 28.82 million consisting of Rs. 2.29 million worth of bicycle chains, Rs. 2.45 million worth of free wheels, Rs. 1.16 million worth of bicycle hubs, Rs. 1.76 million worth of rims, Rs. 1.11 million worth of saddles, Rs. 0.55 million worth of bicycle spokes and Rs. 19.48 million worth of other parts and accessories.

Of late U.S.A. has emerged as an important market for Indian bicycles. During April-September 1971 as many as 5410 complete bicycles worth Rs. 0.79 million were absorbed by this market. Bicycle parts and accessories are also exported to USA in considerable quantity.

Recently an Indian firm, M/s. Hind Cycles Ltd., Bombay bagged an export order from U.S.A. for 60,000 bicycles valued at Rs. 15 million. The supplies are to be routed through the State Trading Corporation of India Ltd.

The 'Speed-King' model to be supplied to the U.S. market by the Indian exporter is the latest type with multi speed gears. The export supplies are to start soon.

Besides the entry in the American market the Indian bicycle industry is planning to enter the European market too for complete bicycles instead of export of parts and accessories as is done at present.

The production of bicycles in India has registered a cent percent increase in the decade 1961-1970. From 1.05 million numbers in 1961 output had gone up to 2.09 million numbers in 1970. For the Fourth Plan, a target of 2.7 million bicycles for the organised sector is envisaged. India ranks as the fifth largest manufacturer of bicycles in the world.

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MACHINE TOOLS TO OVERSEAS MARKETS

The Indian machine tools industry has lately come to occupy an important position in the engineering export of the country. From Rs. 7.5 million in 1965-66 the export earnings had gone up to Rs. 28.4 million in 1970-71. In the first six months of 1971-72 (April September 1971) exports of machine tools fetched Rs. 12.40 million as against Rs. 11.43 million earned in the corresponding period of 1970-71.

The export directions for Indian machine tools indicate the growing popularity of these items in developed economies. Some of the tools active in the export trade are lathes, drilling, milling, threading, broaching, shaping, slotting, lapping and gear cutting machines, hydraulic presses, punching and shearing machines etc.

One of the exporting firms, M/s. Perfect Machine Tools Co. Pvt. Ltd., Bell Building, Sir P. M. Road, Bombay-1 have recently executed orders worth Rs. 33,024 from Thiland, Nigeria, Australia and Kenya. The supplies consisted of 4 nos. of shaping machines and one unit each of double ended grinder, radial drilling machine, pillar drilling machine and milling machine. In addition, the Bombay firm has received enquiries from West Germany, Italy, Switzerland, Australia, Kenya, Nigeria and some West Asian and South East Asian countries. The enquiries from Italian and Swiss markets have been received by the firm for the first time.

The firm has also assisted some of the manufacturing units to take up the production of precision tool makers' lathe and heavy duty bandsaw. They are also arranging the manufacture of a universal drilling machine according to the requirements of an overseas importer.

The production outturn by the machine tool industry has recorded a notable increase in the last decade. From Rs. 85.2 million worth in 1961, the output touched a figure of Rs. 373 million in 1970. There are about 100 large scale units and a number of small scale units engaged in the production of a good range of machine tools. Besides the general purpose tools, many sophististicated items have also been added to the production list. Many more are being designed and developed. These are expected to be taken up for commercial production shortly.

EXPORT TRADE IN GEARS

India's export of reduction gears and parts at Rs. 791, 706 recorded an improvement of Rs. 576,854 in 1970-71 as compared to the 1969-70 supply value of Rs. 214,852. U. K. and Malaysia were the major importers in 1970-71 having accounted for Rs. 181,854 and Rs. 275,947 respectively. Countries like Denmark, Singapore and A.R.E. too imported this item in good quantities.

With 13 units in the line the industry has a production capacity of Rs. 40 million worth of reduction gears and 1500 nos. of marine gears. The output in 1970 was of the order of Rs. 40 million.

One leading manufacturer of reduction gears and marine gear boxes, M/s. David Brown Greaves Ltd., Chinchwad, Poona-19 had as export earning of nearly Rs. 1.1 million in 1971. Recently they had received an order from U. K. for 200 units of reduction gears. They are also supplying to the Australian market.

The production range of the Poona firm includes, besides a wide range of reduction gears, marine gear boxes upto 100 hp. Larger ones upto 300 hp for use in large trawlers are under development. A new product recently introduced is the multi speed transmission gear box for use on construction equipment such as road rollers. The firm has so far turned out 40,000 units of reduction gears, 5000 numbers of marine gear boxes and 200 numbers of transmission gear boxes. The output value of company has increased from Rs. 5.1 million in 1964 to Rs. 17.5 million in 1971 and is targetted to reach Rs. 20 million in the current year. The firm expects to diversify its production range in course of time to cover such items as geared motors and helical gear boxes.

COAL SUPPLIES TO BURMA

Nearly Rs. 14 million worth of steam coal and hard coke will be supplied to Burma by the Minerals and Metals Trading Corporation, New Delhi during 1972-73. A contract to this effect has been concluded recently by the Corporation with a Burmese delegation which visited this country.

During April-September 1971 overseas supplies of coal and coke from India mounted to Rs. 8.85 million. Of this Burma accounted for an intake worth Rs. 8.31 million. The other importers were Nepal, Tanzania and U.S.S.R.

EXPORT PERFORMANCE AND POLICY

IMPORT POLICY FOR 1972-73

The import policy for 1972-73 aims at securing the twin objects of self reliance and financing import requirements through country's export earnings.

The new import-export policy envisages greater allocation of imported inputs in the case of selected priority industries, particularly those which have substantial export performance or which contribute to the net saving on present imports.

A dominant role for the public sector in import trade, creation of opportunities for generating more employment, facilities for setting up small-scale industries by Indian nationals returning from abroad, and special emphasis on Export Houses which undertake exports of the products manufactured in the small-scale sector, are some of the significant features of the import policy.

The import control and licensing procedures have been further simplified.

56 additional items have been added to the list of imports canalised through public sector agencies. With the addition of these items, the list of canalised imports will not cover 168 items. On this basis, the public sector agencies will handle imports of about Rs. 1000 million more in value during 1972-73 at the present level of imports. In addition, the State Trading Corporation will also be organizing bulk imports of certain raw materials for sale to actual users and registered exporters.

The Industrial Raw Material Assistance Centre (IRMAC) set up by the State Trading Corporation will further expand its activities for supplying raw materials 'off-the-shelf'. A "Steel Bank" will be set up by the Hindustan Steel Limited to organise bulk imports of steel for meeting the requirements of actual users.

In view of the growing volume and quality of indigenous production, 160 items have been taken off the import list. These include certain types of ball bearings, taper roller bearings, machine tools, machinery and accessories, instruments, dyes and dyes intermediates and chemicals. 87 items which were hitherto allowed to actual users without restriction, will now be permitted only on a restricted basis. These include certain types of ball bearings, drugs and medicines, chemicals and dyes intermediates.

In respect of 29 items, the quotas for established importers have been reduced. These include spare parts of various equipment, drugs and medicines, motor vehicle parts, garage tools and instruments.

On the export front, the State Trading Corporation and Minerals and Metals Trading Corporation will further expand their developmental role to strengthen the export effort by providing assistance in finance, marketing and general services to exporters.

The scheme for the grant of facilities to Export Houses has been further enlarged.

Industrial units in the priority sector exporting 10 per cent or more of their production will be eligible to preferred sources of supply and facilities for expansion of export production. Units which export 25 per cent or more of their production will receive substantially greater preference.

Units in the non-priority sector having similar export performance will be treated as priority units, given the same preference in regard to the sources of supply and for expansion of production, and receive all the facilities normally given to priority units.

The other main features are : the policy of need-based replenishment for licensing of raw materials imports will continue to be followed for meeting the requirements of priority industries.

Selected industries in the priority sector will be allowed additional imports of raw materials against a special allocation of foreign exchange set apart for the purpose.

Additional imports of raw materials will also be allowed to industrial units in the priority sector if they earn net foreign exchange by exporting their products or if their increased output result in a direct saving on present imports.

Small-scale industries in the priority sector will be enabled to obtain their import requirements based on the assessment of their capacity. Special facilities will be available for setting up small-scale industries in the country by Indian nationals returning from abroad. They will be allowed to import machiney without indigenous clearance of a value of Rs. 500,000 and permissible raw materials upto Rs. 100,000 purchased out of their funds abroad.

More facilities have been provided for import of instruments, apparatus and appliances and books by educational, research and technical institutions, research and analytical laboratories and universities.

INCREASE IN JUTE EXPORT EARNINGS

India's export earnings of jute goods in the year 1971-72 are expected to increase by nearly Rs. 1100 million over those in 1970-71. It is estimated that total export will be 776,900 tonnes, worth Rs. 2,984 million as against the export worth Rs. 1890 million in 1970-71.

Varietywise the exports will be : 328,700 tonnes of hessian, 257,800 tonnes of carpet backing, 126,400 tonnes of sacking and 64,000 tonnes of other jute goods.

The rise in exports during 1971-72 has been the result of increased production of jute, estimated at 1.27 million tonnes.

Jute export target for 1972-73 has been fixed at 750,000 tonnes worth Rs. 2700 million. The break up of the target is hessian 315,000 tonnes, sacking 105,000 tonnes carpet backing 260,000 tonnes and other jute goods 70,000 tonnes.

EXPORT PERFORMANCE OF OFFICE MACHINES

India's export of office machines in the first half of 1971-72 showed an improvement of Rs. 6.3 million, thus registering a rise of 75 percent as compared to the first half of 1970-71. The export value during these periods were Rs. 14.73 million and Rs. 8.41 million.

During April-September 1971, typewriters worth Rs. 228,373 were exported mainly to Malaysia (Rs. 107,802) and Nepal (Rs. 56,553). Manually operated calculating machines brought in Rs. 78,106 in the period. In the group of statistical machine punchers fetched Rs. 3.73 million with U.K. absorbing Rs. 1.22 million worth and France Rs. 1.47 million worth. Imports by Netherlands amounted to Rs. 0.53 million while German Federal Republic had a share of Rs. 0.30 million. Exports of verifiers amounted to Rs. 393,064, collators Rs. 190,225, sorters Rs. 221,308, reproducers Rs. 137,345, and tabulators Rs. 441,857. Other tyqes of statistical machines fetched Rs. 8.36 million. France with Rs. 2.69 million, Italy with Rs. 1.12 million, Australia with Rs. 1.03 million and German Federal Republic with Rs. 0.95 million were the major importers. As much as Rs. 647,409 worth of parts of statistical machines were also exported during this period.

Other office machines like duplicating machines, stapling machines etc. were also exported in smaller quantities.

In the entire year 1970-71 the export value of office machines amounted to Rs. 19.57 million while it was Rs. 18.95 million in 1969-70.

STC's EXPORT EARNING RISES

The State Trading Corporation of India has set an export target of Rs. 1280 million in 1972-73 as against the export performance of Rs. 970 million in 1971-72. This will be a rise of 32.2 per cent in their export effort.

The Corporation is already having export orders worth Rs. 1050 million i.e. nearly 85 per cent of the target for 1972-73.

During 1971-72 STC exceed its targets of imports and exports at Rs. 970 million showed a rise of 31 per cent and imports at Rs. 2207 million registered a 43 per cent increase.

The State Trading Corporation is also likely to promote regular shipping services between India and Latin American ports in order to strengthen further the trade and economic cooperation with South American continents.

ECONOMIC GROWTH AND INDUSTRIAL DEVELOPMENT

STEP UP IN PLAN OUTLAY FOR 1972-73

The total Plan outlay of the Centre, States and Union Territories for 1972-73 will be Rs. 39,734.2 million. This is about 25 per cent of the Fourth Plan outlay in the public sector and represents a step-up of 25.8 per cent over the outlay of Rs. 31,580 million for the year 1971-72.

The sectoral distribution of the outlay for 1972-73 is as follows: Centre 21,442 million; Centrally-sponsored Rs. 1629.7 million; Union Territories Rs. 645 million; and States Rs. 16,017.5 million.

Special programmes have been included to achieve increased output from existing capacity in steel and fertilisers as also for expansion and new projects. The modernisation of export-oriented traditional industries like jute and cotton textiles will get special attention.

High priority has also been accorded in the Annual Plan to firm commitments, spill over expenditures from the previous years, completion of works in an advanced stage of construction, expeditious construction of other works on hand and fuller utilisation of capacities already created.

The distribution of Plan outlay by major heads of development is as follows: Agricultural and allied programmes Rs. 7823.6 million, Irrigation and Flood Control Rs. 2603 million, Power Rs. 6022.6 million, Village and Small Industries Rs. 626.4 million, Industry and Minerals Rs. 7307.5 million, Transport and Communications Rs. 7283.6 million, Education Rs. 1945.1 million, Scientific Research Rs. 424.1 million, Health Rs. 872.6 million, Family Planning Rs. 631.5 million, Water Supply aud Sanitation Rs. 1011.8 million, Housing, Urban and Regional Development Rs. 619.3 million, Welfare of Backward Classes Rs. 421.4 million, Social Welfare Rs. 1538.4 million, Labour Welfare and Craftsmen Training Rs. 80.3 million and Other Programmes Rs. 522.9 million.

The reorientation of the Annual Plan for 1972-73, apart from making a qualitative change in the current Plan, will provide a sound basis of experience for making a much bigger effort in the Fifth Plan.

Industries and Minerals

The total outlay provided in the Annual Plan for 1972-73 is Rs. 7933.9 million. The bulk of the outlay is intended for basic industries like steel, fertilizers, petroleum, mineral development and non-ferrous metals. The steel projects account for about 30 per cent of the outlay envisaged for 1972-73. In non-ferrous metals, substantial additional provision has been made for the aluminium and copper projects as compared with the previous year. Increased provision has been made for oil exploration and the Haldia refinery; it is also envisaged that the construction of new refineries at Bongaigaon and in the north-west region will be taken up during 1972-73. Another major direction in which progress in implemention is expected is the construction of the naptha cracker and associated facilities in the Gujarat petro-chemical complex. In fertilisers, substantial additional provision has been made to proceed speedily with the expansions and setting up of new projects.

Particular attention will be given to fuller utilisation of existing capacity. Necessary provisions have been made for balancing or additional equipment that need to be set up and for technological improvements for achieving higher levels of output. As a result, better performance in industries like steel and fertilisers is envisaged in 1972-73.

The need for expanding activities in the production of consumer goods which are in short supply has also been taken into account. Provision has been made for speedily proceeding with the scooter project, for the expansion of the production of drugs and speeding up the implementation of projects for the manufacture of cement and paper.

New projects to be taken up by way of advance action for the Fifth Plan, are the new steel plants to be put up at Hospet, Visakhapatnam and Salem. Particular emphasis has been placed on speeding up surveys relating to natural resources in the mineral sector, as an essential pre-requisite to the identification of projects in the metallurgical, petroleum and allied industries.

Agricultural and Allied Programmes

In the agriculture sector apart from the on-going agricultural programmes, certain schemes which are designed to overcome the main deficiencies and shortfalls will be taken up during 1972-73. In the field of agricultural research and education, special attention will be given to the development of agriculture in humid and high rainfall areas, temperate hilly zones etc. by taking up coordinated schemes for research on water management in these areas and for research on use of saline water in agriculture. The research on post-harvest technology and allied matters will be intensified. For the development of dry areas, research on an integrated package of technology will be further strengthened. New programmes have also been included in the Annual Plan for intensifying research on cotton and jute.

Special efforts will be made to boost the production of important commercial crops such as cotton, jute and oil seeds.

Major and Medium Irrigation

Priority has been given to the completion of the continuing schemes which are in an advanced stage of construction. Adequate provisions have also been made in respect of inter-State and multi-purpose projects. A number of new major and medium irrigation schemes will be launched. In addition, outlays will be provided for investigation of irrigation and power projects. In part these outlays will result in preparatory action for the Fifth Plan.

Power Development

The installed generating capacity in the country at the begining of 1971-72 was 16.5 M.KW which is expected to increase to 17 M.KW at the end of 1971-72. In 1972-73, 1.5 M.KW are expected to be added which will step up the aggregate installed capacity in the country at the end of the financial year to about 18.5 M.KW. The total sale of energy is expected to increase from about 54,000 million units in 1971-72 to about 59,000 million units in 1972-73.

The Rural Electrification Programme in the States has received increasing importance over the years. It is anticipated that about 300,000 additional pump sets will be energised in 1972-73, bringing the total number of pumps in the country to about 2.2 to 2.3 million as against 1.1 million at the commencement of the Fourth Plan.

Special efforts are proposed to be made during 1972-73 for accelerating the development in the other sectors as well, including those in the transport scientific research and social services sectors.

ALKALI CHEMICALS

A REVIEW

All the basic alkali chemicals are priority industries and some of them are even classified as core/key industries such as soda ash, caustic soda, calcium carbide and liquid chlorine. These basic chemicals form either raw material or treating chemicals in the manufacture of many consumer articles like soaps, textiles, pulp and paper, rayon, aluminium and other non-ferrous metals, petroleum refining, drugs and pharmaceuticals, processing of food stuff, sanitation, etc.

With 4 units in the organised sector and an installed capacity of 470,800 tonnes, the production of soda ash at 478,941 tonnes in 1971 indicated an increase of 7.8 per cent as compared to 1970 production of 446,443 tonnes. As certain soda ash consuming industries like glass, bicromates, sodium silicate, etc., prefer the use of the dense variety of soda ash, a part of normally produced light soda ash is converted by compression. In 1971, to increase the availability of dense variety, some of the existing units did not undertake the production of very dense variety but switched over to medium dense variety. Thus, the total quantity of dense soda ash produced in the year was considerably higher as compared to the previous year's output.

The quantity of light soda ash produced in the country in 1971 was of the order of 379,000 tonnes as against 364,000 tonnes in the previous year while the dense variety increased to 100,000 tonnes from 82,000 tonnes.

In addition to the four large-scale units engaged in the line, there are three expansion schemes totalling to a capacity of 293,000 tonnes and four new installation schemes with a capacity of 324,000 tonnes. Of the 7 schemes, one installation project and two expansion schemes are now under implementation and they are expected to be completed by the middle of 1975. Some more letters of intent have been issued for establishment of a capacity amounting to 790,000 tonnes per annum.

Caustic soda is being manufactured by 28 units in the country and their installed capacity increased to 372,123 tonnes in 1971 from 367,398 tonnes in 1970. The actual production too registered an increase of nearly 3 per cent at 374,780 tonnes in 1971 as compared to 361,459 tonnes in 1970. But for the shortage in the supply of graphite anodes, the production of this chemical in 1971 would have been much higher. The quantum of caustic soda manufactured by various processes were 292,000 tonnes by the mercury cell process, 59,000 tonnes by diaphragm cell process and 24,000 tonnes by the lime-soda process. The quantity of production of different varieties in 1971 were lye caustic soda 267,000 tonnes, fused solid 84,000 tonnes and flakes 25,000 tonnes.

In the year 1971, certain technological developments have been introduced in the production of caustic soda. A few existing firms built mercury cells indigenously and some units developed the technology for rubber lining of these mercury cells.

Caustic soda is a very basic inorganic chemical required in the direct manufacture of aluminium, paper and pulp, viscose, rayon and staple fibre, textiles, hydrogenerated oil, soap and various other chemicals. It also goes in some form or other as an auxiliary chemical or as a processing chemical in industries like petroleum refining, steel, textile dying, photography, electroplating, industrial cleaning etc. In view of its increasing importance and the need to increase the production capacity, a short-term crash programme was worked out by which several existing manufacturers found it possible to step up their capacity by installing some small balancing equipment and rationalising the existing plants. These schemes are under consideration now.

With a production of 162,442 tonnes in 1971, the installed capacity of the 22 units manufacturing liquid chlorine stood at 222,012 tonnes. The actual output was a 10 per cent increase as compared to the 1970 outturn of 137,054 tonnes.

Registering a 23 per cent increase, production of stable bleaching powder stood at 16,718 tonnes in 1971 as compared to 13,744 tonnes in 1970. The installed capacity in this sector increased to 25,800 tonnes from 21,280 tonnes. The production in the year remained somewhat lower than expected because of the non-availability of good quality lime.

With an increase in the installed capacity to 9288 tonnes in 1971 from 7728 tonnes in 1970 the production of sodium hydrosulphite and its derivatives showed a 14 per cent incsease. The figures of output in 1971 and 1970 were 5869 tonnes and 5113 tonnes. Due to the inadequacy of indigenous supply of this chemical, some quantities were imported during the year. A new sodium hydrosulphite plant has been completed and trial production has started. It is expected that the regular commercial production of this unit will be commenced during 1972.

The production of sodium sulphoxylate formaldehyde was 125 tonnes in 1971 as compared to 437 tonnes in 1970. The demand of this chemical fluctuates depending upon the dyeing process in textiles and also the availability of imported counterparts.

Output of sodium bicarbonate in 1971 registered a slight fall at 19,715 tonnes when compared to 19,951 tonnes produced in 1970. The break-up of production of sodium bicarbonate in the technical variety and pharmaceutical variety were 18,443 tonnes and 1,272 tonnes respectively in 1971 as against 18,161 tonnes and 1790 tonnes in 1970.

Ammonium bicarbonate is produced by two different units of the Fertilizer Corporation of India at Sindri and Trombay as well as by one manufacturer of soda ash. The installed capacity and actual production showed an uptrend in 1971. The actual output went up to 4647 tonnes in 1971 from 3639 tonnes in 1970 while the installed capacity increased to 8296 tonnes from 7300 tonnes.

In 1971, 6847 tonnes of caustic potash were produced in the country which was a 10 per cent increase when compared to the 1970 production of 5945 tonnes. The installed capacity in this secor is of the order of 12, 375 tonnes. In these two years production of lye calcium potash accounted for 3138 tonnes and 2737 tonnes while solid fused variety amounted to 182 tonnes and 269 tonnes. The output of flakes stood at 3527 tonnes and 2939 tonnes.

The output of potassium carbonate at 2337 tonnes in 1971 registered a 21 per cent increase as compared to 1970 when the production was of the order of 1919 tonnes. The output has crossed the installed capacity of 1500 tonnes. In order to increase production, steps have been taken by existing manufacturer to expand the capacity and a new unit is also being set up.

After a steady growth till 1970, production of calcium carbide showed a small decline at 69,515 tonnes in 1971 as against 69,723 tonnes in 1970. As actual production of this chemical has reached the installed capacity, steps have been taken to establish new manufacturing units. Already 22 letters of intent for substantial expansion and setting up of new units for a total capacity of 2,60,000 tonnes have been issued. One manufacturing unit installed machinery for making use of small fines of calcium carbide (which is normally last) in the from of briquettes for generation of acetylene in their own generator, for final conversion into PVC. A few of the ferro alloy manufacturers are also expcted to take up the production of calcium carbide in their plants.

The production of sodium metal which was only 12 tonnes in 1970 increased to 46 tonnes in 1971. Some steps are being taken to increase the productive capacity of this sector.

Some effective steps have been taken during the year 1971 to overcome the difficulties faced by the alkali chemical manufacturers. A beginning has been made in packing flake caustic soda in bags made of woven plastic fibre instead of steel drums which require import of steel sheets. If this process gets established, import of steel sheets will be considerably reduced. A number of manufacturers of this chemical, because of inadequate supply of imported spare parts, took steps to develop indigenously such components as bus bars, flexible copper and aluminium connections, rubber lining, short circuit switches, mercury pumps, special valves for standing moist chlorine, pipelines, for handling hydrochloric acid and gas chlorine. flanges, etc. In the manufacture of sodium hydrosulphite, zinc dust of a very rigid specification is required. One indigenous manufacturer of zinc dust was afforded all possible assistance to produce an accepted specification of this item. This firm was able to manufacture about 20 per cent of the requirement of zinc dust and subject to availability of zinc ingot in larger quantities can increase the output in coming years.

HEAVY ENGINEERING

RECORD OUTPUT

The two main units of the Heavy Engineering Corporation Ltd., Ranchi, the Foundry Forge Plant and the Heavy Machine Building Plant, have achieved record output in 1971-72.

The Foundry Forge Plant produced in 1971-72, 20,954 tonnes of castings and forgings against a target of 21,150 tonnes. Thus registering a 31 per cent increase as compared to the output in 1970-71.

The Heavy Machine Building Plant achieved a total output of 30,468 tonnes of mechanical and structural equipment as against a target of 34,000 tonnes. The production in this unit in 1970-71 was 23,108 tonnes and in 1969-70, 24,462 tonnes. During 1971-72 the production in the plant increased by 32 per cent.

In the Heavy Machine Tool Plant 20 machine tools of the value of Rs. 16.6 million were produced in 1971-72 as against 28 machine tools of the value of Rs. 10.5 million produced in 1970-71. The percentage of indigenous components in the machine tools produced was also higher.

The production targets of the Corporation for 1972-73 have been increased by 50 per cent as compared to the targets for 1971-72.

COTTON, JUTE AND OILSEEDS
SCHEMES FOR IMPROVEMENT

A few projects aimed at increasing the production of cotton, jute and oilseeds have been approved for implementation. The schemes relating to the production of cotton are : Intensive Cotton District Programme in Punjab, Haryana, Rajasthan, Maharashtra, Gujarat, Madhya Pradesh, Andhra Pradesh, Mysore and Tamil Nadu; Schemes for extension of Hybrid - 4 Cotton in Gujarat, Madhya Pradesh, Maharashtra and Mysore; scheme on Cotton demonstrations and development in Sunderbans and coastal belt of West Bengal; and scheme for strengthening cotton seed multiplication programme in the States of Rajasthan, Madhya Pradesh, Maharashtra, Andhra Pradesh, Mysore and Tamil Nadu.

The scheme relating to the production of jute is the intensive Jute District Programme in West Bengal, Bihar, Orissa, Assam and Andhra Pradesh.

The projects relating to the production of oilseeds are : scheme for Soybean Development in Uttar Pradesh, Madhya Pradesh, Maharashtra and Gujarat; scheme for Sunflower Development in Andhra Pradesh, Mysore, Tamil Nadu in 1972-73 to be continued in 1973-74 with the addition of a few other States, and projects for the Development of Red Oil Palm in Kerala and Andaman and Nicobar Islands.

ONE MORE GENERATOR ERECTED

The Heavy Electricals factory at Bhopal has successfully erected and commissioned one 30,000 KW turbine-generator set at Parli Thermal Power Station in Maharashtra, thereby establishing self-sufficiency in the field of installation of power plant in the country. The second 30,000 KW set is in the final stages of erection at site.

The Bhopal factory has supplied thermal generating sets and transmission equipment for the Parli Power Station. The equipment has been entirely manufactured, tested, erected and commissioned by Indian engineers of the factory.

The scope of supply to Parli included two 30,000 KW turbine-generator sets, condensers and feed heating plant, complete electrical and mechanical auxiliaries, interconnections, instrumentation with the engineering and consultancy services, switchgear and protection equipment.

The Bhopal factory has also undertaken the installation of Santaldih and Chandrapura Thermal Power Stations for which 120,000 KW turbine-generator sets are being supplied by HEIL alongwith other station auxiliaries.

SHIPPING TARGET TO BE FULFILLED

India's shipping tonnage will be about 2.9 million GRT by the end of the Fourth Plan (1973-74). In addition 1.715 million GRT will be either on firm order or would have been acquired by then. Thus, after scrapping the overaged ships the plan target of 4 million GRT is expected to be fully achieved.

On March 1, 1972 the operative tonnage was 2.509 million GRT and 1.442 million GRT was on firm order, making a total of 3.951 million GRT.

It is estimated that overaged ships aggregating to 224 million GRT will be scrapped during the remaining period of the Fourth Plan. Only 273 million GRT has yet to be acquired or ordered to reach the Fourth Plan target of 4.0 million GRT. It is expected that orders will be placed for the remaining tonnage of .237 million GRT during the remaining two years of the Fourth Plan. Orders for further ships as an advance action for the Fifth Plan is also likely to be placed during these two years. The proposed Fifth Five Plan target is 5.8 million GRT.

Of the firm orders already placed, Hindustan Shipyard Visakhapatnam are to build a few ships. They have now taken up the construction of a 13,400 DWT cargo liner for an Indian shipping firm. This is the first of the two ships of the same tonnage being built for the shipping firm. These two ships are a repeat of the V. C. 170 series of ships that are currently being built at the yard with the difference that these vessels will not be fitted with the bulbousbows.

HIGHER OUTPUT OF FERTILISERS

A record production of 165,000 tonnes of urea has been achieved during 1971-72 by the Gorakhpur unit of the Fertiliser Corporation of India. This is a 95 per cent utilisation of the installed capacity. The total production of urea by the unit so far, since inception, is of the order of 565,000 tonnes.

The fertiliser industry in India has increased its output from 112,00 tonnes of nitrogen and 52,440 tonnes of $P_2 O_5$ in 1960-61 to 830,000 tonnes of nitrogen and 229,000 tonnes of $P_2 O_5$ in 1970-71. The installed capacity in that year was 1.145 million tonnes of nitrogen and 0.506 million tonnes of $P_2 O_5$. It is expected that by 1973-74, the installed capacity and production of nitrogen would be of the order of 2.9 million tonnes and 2 million tonnes respectively.

The product pattern for fertilisers has also undergone changes over the years. Starting with only ammonium sulphate and super phoshate, the industry now produces urea, calcuium ammonium nitrate, ammonium sulphate, nitrate (double salt), ammonium phoshate, nitro phosphate and other complex fertiliser as well as NPK mixtures.

MORE LAND FOR JUTE CULTIVATION

The area under jute plantation has been increased by 13.4 per cent or 99,700 hectares to 846,000 hectares during the year 1971-72 season over that of 1970-71. This increase in the area under jute, during 1971-72 has been shared by all the jute producing states particularly West Bengal.

In West Bengal during 1971-72, the jute area increased by 69,700 hectares to 475,800 hectares. The estimated area under jute cultivation was 134,000 hectares in Assam, 7,100 hectares in Meghalaya, 152,200 hectares in Bihar, 54,200 hectares in Orissa, 132,200 hectares in Uttar Pradesh and 9,500 hectares in Tripura.

The area under mesta production was 275,300 hectares in 1971-72 against 303,400 hectares in 1970-71.

BAUXITE RESERVES IN KERALA

Bauxite deposits have been discovered in the Cannanore District of Kerala. The Geological Survey of India had carried out the investigation in Kumbee area of Cannanore District and it was revealed that total reserves of 1.8 million tonnes of bauxite, with 40 per cent and above of aluminium trioxide are available.

Reserves of bauxite were also discovered in Nileswar area in the District. The detailed investigation is being carried out in this respect by the Geological Survey of India. The GSI is also carrying out investigation to discover iron ore deposits in the Kozhikode District of Kerala.

The Geological Survey of India has also drawn up a 10 year plan of mineral exploration. The programme envisages a total of 122,400 sq. km. of large scale maping and 1.56 million meters of drilling.

The first phase of the programme is being implementated. During the first phase, an area of about 66,280 sq. km. of large-scale mapping 860,000 meters of drilling and 45,150 meters of mining will be covered.

SCIENTIFIC RESEARCH AND PRODUCT DEVELOPMENT

DEVELOPMENTS IN FOOD TECHNOLOGY

The Central Food Technological Research Institute, Mysore has undertaken research on two projects to upgrade and enrich food products.

The first project will evaluate the scientific factors involved in curing poultry meat and will develop efficient methods of producing high quality cured products, suitable for transportation and storage at normal temperature. A three year programme will be directed by a team of scientists.

The second project will investigate important microbial fermentation of food products. Experiments will be carried out to ferment soyabean and oil seed cakes to develop protein rich food products. It will also study dehydration of products to obtain dry food which could be quickly reconstituted with water.

The Institute has released in 1971, 10 processes developed by it for commercial utilisation by the industry.

In addition to some processes being utilised by the Government organisations and those which have been standardised by the CFTRI and given to the industry, the number of CFTRI processes has risen to 40. It has resulted directly in a saving Rs. 5 million a year in India's imports of processed food.

The ten processes released in 1971 relate to manufacture of high quality oleoresins (extractives) from spices, tamarind juice concentrates, pectin form pectinacious materials, weaning food, multipurpose food, egg albumen flakes, fruit bars, instant jamun flour, garlic powder and distillation of cardamom oil. Out of these, five processes relating to manufacture of oleoresins, tamarind juice concentrates, multipurpose food, egg albumen flakes and instant jamun flour have already gone into industrial production.

Oleoresins are convinent to use and they provide uniform flavour to foods. The process standardised by the CFTRI, enables extraction of high quality oleoresins from pepper, ginger, turmeric and chillies. The processing know-how has been provided to many Indian firms and one of them has already started production. A unit in Tamil Nadu has taken up manufacture of cardamom oil.

Tamarind juice concentrates add interest to some of the culinary preparations. The CFTRI has provided technical assistance to two firms in Andhra Pradesh and one in Bangalore for production of the juice concentrate. The weaning foods developed by CFTRI are very significant from the point of view of meeting the protien needs of children in the age group of 3 to 5 years. The process has been taken up by a firm in Bombay.

Two firms in Mysore have taken up the production in 1971 of the multipurpose food. The food contains vitamins, minerals and 42 per cent proteins and is very useful as a rich daily diet for children and adults alike. Two units in Uttar Pradesh are already engaged in the production of the multipurpose food on the basis of the know-how provided by the CFTRI.

The process of manufacture of pectin has been taken by a firm in Maharashtra.

NEW CERAMIC MICROPHONES

The Central Electronics Engineering Research Institute, Pilani has developed ceramic microphones. These new microphones are well suited for manufacturing commercial tape recorders, public address systems and for two way communication systems in general, in which high fidelity is not the prime consideration. The lead zirconate titanate (PTZ) element has been used as the transducer. The transducers use the piezo-electric property of the poly crystaline poled PTZ ceramics.

IMPROVED JUTE PACKAGING

The research conducted by the Indian Jute Industries Research Association (IJIRA) to develop an alternative jute based cement bag for minimising the loss of cement by seepage is showing good results.

The experiments are being carried out to produce a new bag-heat resistant adhesive bonding of jute waste caddis-with higher resistance to hooking and a better anchorage of the caddis. Out of the many experiments carried out on different weights of hessian-14 oz, 12 oz and 10 oz, the tests have indicated that 12 oz fabric would withstand severe drops and repeated handling with hooks. In this type of fabric it was observed that the seepage was quite low and the coating of the caddis remained intact and the bag appeared to be suitable for reuse.

It is expected that the new improved bag will be suitable for filling and handling from the factory to the consumer point. IJIRA is also exploring the possibility of minimising the production cost of the new bag.

DIRECTION OF INDIA'S EXPORTS

(In million rupees)

	April to September	
	1970	1971
Africa	**539.70**	**609.50**
Ethiopia	9.99	10.39
Kenya	40.48	57.39
Libya	11.89	10.10
Mauritius	6.77	7.84
Nigeria	28.59	55.34
Sudan	128.00	199.70
Tanzania	18.66	33.18
Uganda	10.15	18.28
Arab Republic of Egypt	209.36	113.44
Zambia	17.89	26.57
North America	**1092.17**	**1621.31**
Canada	138.91	216.68
U.S.A.	953.27	1404.63
Latin America	**25.32**	**73.15**
Argentina	9.84	32.86
Chile	0.53	11.12
Mexico	4.71	2.51
Peru	0.92	9.54
Uruguay	2.69	5.00
Other American Countries	**10.03**	**17.49**
ECAFE Countries	**1943.75**	**1952.94**
Afghanistan	60.13	64.52
Australia	121.68	145.99
Burma	91.36	51.78
Ceylon	129.72	129.51
Hong Kong	84.91	87.89
Indonesia	16.58	17.12
Iran	132.11	100.15
Japan	984.13	826.80
Republic of Korea	11.48	58.29
Malaysia	48.94	75.69
Nepal	116.71	128.76
New Zealand	27.54	64.40
Singapore	69.51	94.83
Thailand	22.99	23.51
Republic of Vietnam	3.04	32.39

(In million rupees)

	April to September	
	1970	1971
Other Asian & Oceanian Countries	**331.59**	**312.13**
Bahrein Islands	20.48	17.70
Dubai	24.73	22.38
Fiji Islands	5.53	7.94
Iraq	35.17	57.20
Jordan	16.08	14.36
Kuwait	67.20	54.22
Lebanon	5.60	8.12
Muscat & Oman	6.49	13.70
Qatar	31.58	14.82
South Yeman	25.57	22.71
Saudi Arabia	69.54	46.49
Syria	13.12	12.43
East European Countries	**1641.36**	**1753.11**
Bulgaria	34.54	60.53
Czechoslovakia	131.66	135.84
German Democratic Republic	128.14	113.90
Hungary	74.33	88.38
Poland	103.34	71.19
Rumania	55.45	51.93
U. S. S. R.	927.44	1095.39
Yugoslavia	186.47	135.95
European Common Market Countries	**464.33**	**559.63**
Belgium	96.48	102.12
France	79.23	103.50
Federal Republic of Germany	162.24	187.49
Italy	57.89	97.90
Netherlands	68.46	68.61
European Free Trade Area Countries	**812.79**	**915.26**
Denmark	19.39	18.71
Sweden	19.36	24.84
Switzerland	39.37	41.43
U. K.	728.20	815.70
Other European Countries	**61.13**	**70.20**
Finland	1.77	2.71
Greece	11.79	7.05
Ireland	30.08	33.83
Spain	13.95	9.98
Turkey	1.55	14.70
Total including Other Countries	**6922.18**	**7884.72**

Source : Department of Commercial Intelligence and Statistics, Calcutta.

PAINTS AND VARNISHES

Particularly meant for transport and general industrial applications, the paints industry in India has made notable progress in recent years. The industry was initially confined to the production of limited types of products like pigments and dry colours, distemper, paste and mixed paints, treated oils and varnishes. From these general purpose types the industry began to widen the range of output for melting the growing requirements of sophisticated consuming industries that developed in the country. Lately, not only the range of industrial finishes based on synthetics has been widened but a large number of medium scale units have succeeded in entering into the field of sophisticated finishes. Presently the paints industry in the country is able to meet the surface coating requirements of a broad spectrum of industries including transport, chemical and structurals.

Among the categories of surface coating materials now manufactured mention may be made of high quality protective paints for decoration of houses, buildings and factories; synthetic enamels and varnishes for production of strucutrals and commercial transport vehicles; marine and industrial finishes conforming to international standards and specifications for painting of ocean-going vessels and jet air-crafts; paints to withstand rigours of temperature and corrosion from acids, alkalis and petrol; insecticides and antipest finishes and supersynthetic enamels and impregnating varnishes required by the electrical industry.

In the organised sector of the paints industry there are presently 18 units with an installed capacity of 106,300 tonnes for the manufacture of paints, enamels and varnishes. Additional capacity of nearly 14,000 tonnes has been supported. Actual production in 1971 was of the order of 66,000 tonnes valued at about Rs. 280 million in case of paints, enamels and varnishes and 4000 tonnes in respect of wire enamels and impregnating varnishes. Import of finished paint items has been restricted and presently only some categories of paint for export production are allowed to be imported.

Apart from the 18 organised manufacturers registered with the Directorate General of Technical Development, there are more than 250 small scale units scattered all over the country.

Aside from the strides made in the Indian paint industry in respect of manufacture of finished paint items, there has also been a substantial development in the contex of essential raw material production needed for paints. Important among these are pigments, synthetic resins and industrial solvents. A number of inorganic pigments like titanium dioxide, zinc oxide, white lead, non-setting red lead, yellow chrome, prussuian and ultramarine blue, brunswick green, chromic oxide green, red synthetic oxide and aluminium power/paste as well as a wide range of organic pigment dyestuffs are manufactured in large quantities. India has also achieved a stage of industrial self-sufficiency in respect of synthetic resins like alkydes, phenolics, maleics, melamines and urea formaldehydes, epoxy and polyvinyl acetate emulsion which constitute the base for the production of high gloss industrial finishes. An extensive group of industrial solvent based on coaltar and petroleum are also available in the country.

Actual production of synthetic resins during 1971 was of the order of 15,483 tonnes. In the same year the output of titanium dioxide was 5427 tonnes, zinc oxide 5400 tonnes, white lead 638 tonnes, ultra marine blue 5245 tonnes and aluminium powder/paste 1560 tonnes.

India's overseas supply of pigments, paints, varnishes and related raw materials is on the uptrend. From Rs. 23.7 million in 1969-70 the export earnings rose to Rs. 45 million in the following year.

Among the colouring materials, ultra marine blue was mainly supplied to the Vietnam Republic, U.K. and France at a value of nearly Rs. 1 million. Export of Persian Gulf red oxide was effected mainly to France and German Federal Republic. Including these two varieties the total export value of colouring materials was of the order of Rs. 3.1 million.

A wide variety of prepared paints, enamels, lacquers, varnishes and artist's colours are also on the export stream. Their export value during 1970-71 was as much as Rs. 41 million. Synthetic enamels constitute the leading item of these exports, having fetched Rs. 18.8 million in foreign exchange in the year. U.S.S.R. is the largest importer of synthetic enamels having absorbed 2.8 million kg. at a value of over Rs. 16 million. Iraq, A.R.E. and Kuwait are the other importers of synthetic enamels. Next in import-

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ance of the exports are varnishes which earned Rs. 10 million mainly from the USSR (Rs. 9.9 million).

Prepared organic dyestuffs and dry pigments, prepared inorganic pigments, opacifiers, liquid lusters used in ceramic enameling lacquers, prepared meatllic powder prepared as paints, red mixed paints, natural resin enamels, prepared water pigments used for finished leather, textile printing colour pigments, emulsion binders, prepared putty painter filings, etc. are also faring well on the export front.

During the first six months of 1971-72 exports of paints, varnishes, pigments and related materials amounted to Rs. 13.15 million.

With the expertise built up in the line, the industry today is in a position to export technical know-how for establishing factories for the manufacture of standard quality paints, enamels and varnishes as also inorganic pigments and synthetic resins particulary among developing countries on a turnkey basis. □

Attention

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TECHNOLOGICAL ASSISTANCE TO SINGAPORE

The technical competence developed in India in various fields has enabled many organisations to enter the field of export of consultancy services and technological expertise.

One such service has been undertaken by an Indian research institution for the Port of Singapore Authority who have under consideration serval schemes for expansion of the port facilities there. The hydraulic model investigation for these expansion proposals is being handled by the Central Water and Power Research Station, P. O. Khadakwasla Research Station, Poona-24 at a cost of Rs. 1.22 million.

This is the first study undertaken by the research station for a foreign client after its recognition by the U.N. as the Regional Laboratory for ECAFE.

Expanding its research activities, the Poona Station has set up a Cavitation Research Centre for undertaking hydraulic research. A multi test water tunnel constructed at this centre will make it possible for carrying out experiments with models of hydraulic machines, equipment and structurals. The centre will help develop safe, economic, efficient and cavation free water turbines and pumps and other equipment and structures for hydro electric plants and irrigation.

The multi test water tunnel has since become operational after having conducted a series of acceptance tests. The tunnel has been so designed as to undertake marine propeller tests, thus serving the ship building industry as well.

As its basic task, the Centre will investigate performance of models of water turbines and pumps, hydraulic gates and valves in relation to the problem of cavitation. Cavitation tests carried out in the tunnel will promote enterprises in the design of equipment for hydraulic projects and will minimise failure of and damages to hydraulic equipment caused by cavitation vibrations.

Many organisations in the country are now utilising the facilities available in the Poona Centre. For instance the Heavy Electricals Ltd., have requisitioned the services of the centre for industrial testing of models of a Kaplan turbine and other types of turbines. The Bhakra Board also intends to conduct large scale model tests for the right bank turbine units. Several enquiries have also been received by the centre from pump manufacturers for undertaking development research work on motor tunnel installations.

LOUD SPEAKERS TO WEST GERMANY

Nearly Rs. 35,000 worth of radio and other loundspeakers was exported from India during April-September 1971. Ceylon, Lebanon, Singapore, Sudan, Iran and Kuwait were the importers of Indian loudspeakers.

Indian manufacturers have now started exporting to such sophisticated markets as West Germany. Recently an order for 1000 pcs of loudspeakers has been received by a small scale unit M/s. Happy Sound Industries, 1137/38. Chandni Chowk, Delhi-6. The West German importers were satisfied with the performance standards of the baby unit horn combination loudspeaker developed and manufactured by the Delhi firm.

The manufacturer is already active in export trade and has supplied nearly 15,000 loudspeakers to such countries as Iran, Iraq, Sudan, South Yemen and Greece.

The loudspeakers available in attractive anodised colours are suitable for outdoor installation as also for use as extra speakers fot radios and amplifier.

BARYTES FOR EXPORT

Export of barytes, a chemical used for oil drilling operation amounted to 16,648 tonnes valued at Rs. 3.43 million in the first six months of 1971-72. Saudi Arabia absorbed as much as 10,860 tonnes at Rs. 2.10 million. Iraq's intake stood at 3,710 tonnes of a value of Rs. 0.72 million. The other major destinations were Japan, Dubai and Italy. During the year 1970-71 nearly 19,628 tonnes of barytes amounting to Rs. 3.69 million were supplied overseas.

Recently an export order worth Rs. 7.5 million has been secured by M/s. Chemco Supply Corporation, 19, Khorshed Building, Sir P. M. Road, Fort, Bombay against servere international competition.

Export enquiries have also been received from countries like Malaysia, Singapore, Indonesia and Thailand.

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The total production of crude barytes in India is placed at 500,000 tonnes of which around 200,000 tonnes are consumed within the country.

INDUSTRIAL VALVES TO POLAND

The export trade in industrial valves has been maintaing a steady trend in the past few years. During April - September 1971 nearly 445,000 kg. of valves at Rs. 1.56 million were exported to about 25 countries. Of them Malaysia accounted for 260,100 kg. at Rs. 853,930, Kuwait for 13,850 kg at Rs. 128,370 and Iran for 57,530 kg at Rs. 127,540. During the entire year 1970–71 the export supplies were of a value of Rs. 2.47 million. Quantitatively this amonted to 548,800 kg.

Recently an order from Poland for industrial valves worth Rs. 1.2 million has been received by an Indian manufacturer of this product M/s. Fouress Engineering (India) Pvt. Ltd., Mahalaxmi Chambers, 22 Bhulabhai Desai Road, Bombay-26. The supplies are to be completed by November, 1972. The firm had earlier executed export ordes from Kuwait, A.R.E. and some East Asian Countries.

By way of import substitution, the Bombay firm has so far helped the country save foreign exchange to the tune of nearly Rs. 20 million by meeting indigenously the requirement of valves by major refineries, fertilizer plants and other industrial complexes. The production line of the company includes gate, globe and check valves in cast steel, forged steel, stainless steel and special alloy steel and butterfly valves.

EXPORT TRADE IN HEAVY ELECTRICALS

A vide variety of Indian made heavy electrical products are in good demand in overseas markets. In the first half of 1971–72 export sales of electrical power machinery and switchgear improved to Rs. 24.95 million as compared to Rs. 16.54 million worth exported in the comparable period of 1970-71. During the whole year 1970-71 the export of such items brought in Rs. 44.68 million. This was a 56 percent increase when compared to the 1969-70 exports at Rs. 28.65 million.

Among the many exporting firms, M/s. Mysore Electrical Industries Ltd., Post Box No. 1201, Bangalore-12 have booked firm orders for such electrical machinery as 11 KV and 66 KV switchgears, 33 KV oil circuit breakers, L. T. oil circuit breakers, control panels etc. at a total value of Rs. 0.80 million. The orders received during a part of 1971 and upto March, 1272 have come in from Singapore, Malaysia, Mauritius, Sudan and Australia. The order from Mauritius has been received by the firm for the first time. Some of the orders have already been executed and supplies in respect of others are to be completed between June and August this year. Earlier the firm had exported Rs. 0.90 million worth of equipment to Burma and Rs. 0.77 million worth of items to Sudan. These two orders were secured by the firm in the face stiff international competition.

In addition to the present export commitments, the Bangalore company has received overseas enquiries from such countries as Burma, Ceylon, Indonesia, Sudan, Singapore, Kuwait, Australia, Malawi and Mauritius.

Besides the current export offers to the tune of Rs. 3 million per annum, the firm has additional capacity to manufacture electrical items worth Rs. 1.5 million. The unit is also having propsals for increasing their capacity at an annual rate of 10 per cent.

INDO-MALAYSIAN VENTURE STARTS PRODUCTION

The Indo-Malaysian Engineering Company Pvt. Ltd. set up in Kuala Lumpur with the assistance of three Kirloskar Companies, M/s. Kirloskar Electric Co. Ltd., Bangalore, M/s. Kirloskar Oil Engines Ltd., Poona and

M/s. Kirloskar Bros., Kirloskarwadi has started the production of engineering goods and a wide range of components.

The plant will initially manufacture electric motors upto 20 hp, sluice valves upto 6 inches and alternators upto 10 KV. The production of electric motors upto 100 hp sluie valves upto 12 inches, alternators upto 100 KV, diesel engines from 10 hp to 50 hp and centrifugal pumps upto 12 inches will be taken up later.

Nearly 80 percent of the machinery installed in the factory are of Indian origin. Receiving top priority from Malaysian Governmet, the work on the project was completed within a period one year.

RECORD EXPORT OF METAL SCRAP

During 1971-72, record in the export of two of the three categories of ferrous scrap has been established by the Metal Scrap Trading Corporation. In both the cases exports have been the highest since 1966-67.

Export of mill scale scrap in the year amounted to 89,367 tonnes worth Rs. 6.32 million. Detinned scrap brougt in Rs. 3.55 million through an export quantity of 14,232 tonnes.

In respect of cast iron borings, due to a decline in international demand, Indian exports too went down to 31,660 tonnes in 1971-72 from 44,326 tonnes in the previous year.

EXPORT PERFORMANCE AND POTENTIAL

INCREASED EXPORTS OF TOBACCO

Exports of unmanufactured tobacco during April, 1971-February 1972 registered a quantitative improvement of 8.28 million kg. and in value an amount of Rs. 121.30 million over the export quantum and value of the comparable period of 1970-71. The export supplies during these two comparable periods were 52.05 million kg. at Rs. 391.31 million and 43.77 million kg. at Rs. 270.01 million. U. S. S. R. has emerged as the major importer of this commodity.

U. K. the second important importer increased its offtake in the eleven month period of 1971-72 to 16.04 million kg at Rs. 144.24 million from 15.61 million kg. at Rs. 128.92 million imported in the corresponding period of 1970-71. In the case of other West European markets there was an increase in value from Rs. 18.84 million to Rs. 19.22 million though in terms of quantity the exports showed a decline.

Among the East European countries, U.S.S.R. absorbed in the period as much as 18.92 million kg. at Rs. 150.31 million. This is nearly a three fold increase as compared to the same period of 1970-71 when the exports to that country stood at 6.98 million kg valued at Rs. 55.39 million. The intake by the entire region during the first eleven months of 1971-72 improved in quantity to 20.40 million kg. and in value to Rs. 159.32 million. The export figures for the corresponding period of the previous year were 8.68 million kg. amounting to Rs. 63.21 million. From almost nil in the comparable period of 1970-71 Czechoslovakia purchased nearly 0.62 million kg. valued at Rs. 5.73 million in the period under review.

In the case of South and South East Asian region, there was an increase in export value which went upto Rs. 45.48 million from Rs. 38.70 million. Japan, a major importer in this region of Indian tobacco raised its intake to 4.21 million kg. at Rs. 39.68 million from 2.53 million kg at Rs. 23. 94 million.

The African region too took in a larger volume of tobacco from India during April 1971-February 1972 as compared to April 1970-February 1971. Imports by the region increased to 5.66 million kg valued at Rs. 18.81 million from 5.32 million kg at Rs. 14.39 million. Good export improvements were recorded in the case of countries like Somalia, A.R.E., Ivory Coast and Senegal.

Exports to West Asian Countries have, however, registered a decline in the period to 1.39 million kg at Rs. 3.97 million from 1.85 million kg at Rs. 4.77 million.

During the year 1970-71 total exports of unmanufactured tobacco amounted to 47.52 million kg valued at Rs. 313.98 million.

GEMS AND JEWELLERY
EXPORT REVIEW

The export trade in gems and jewellery has been on a consistent uptrend in the past decade. From Rs. 113.99 million in 1963-64 exports picked up to Rs. 220.10 million in 1966-67 and further rose to Rs. 374.75 million in 1970-71. During the period April 1971-January 1972 the export earnings reached a figure of Rs. 359.02 million.

Cut and polished diamonds worth Rs. 284.2 million were put on the export stream during the first ten months of 1971-72. Compared to the export figures of Rs. 24.34 million in 1963-64, Rs. 110.67, million in 1966-67 and Rs. 278.57 million in 1970-71, the export turnover in the period reviewed is greatly encouraging.

India offers a large variety of cut and polished diamonds in various shapes and sizes. The Villandi cut, Single cut, Brilliant cut, Baguette and Marquise cuts are some of the famous varieties produced in the country. The rapid progress made by this sector has resulted in more and more diamonds finding their way to international markets.

Overseas supplies of precious and semi-precious stones during April 1971-January 1972 amounted to Rs. 63.4 million. During the entire year 1970-71, the export value of these items were of the order of Rs. 78.42 million.

Nearly 30,000 skilled workers turn out a large variety of precious stones in attractive and sparkling shapes such as Cabocheons, droops, beads, Brilliant and Baguette cuts.

After some decline, the export sales of pearls is picking up again. During the period of review export supplies amounted to Rs. 4.12 million. In 1970-71 pearls worth Rs. 9.56 million were exported. Synthetic stones fetched Rs. 711,000 in the first ten months of 1971-72. During 1970-71, the export value stood at Rs. 832,000.

Gold jewellery items worth Rs. 2.51 million were exported in the period and non-gold jewellery brought in Rs. 4.07 million. During the year 1970-71 Rs. 2.09 million and Rs. 5.28 million respectively were earned through overseas sales of these items.

The export target of gem and jewellery items in 1972-73 has been fixed at Rs. 480 million composed of Rs. 330 million worth of diamonds, Rs. 105 million worth of precious and semi precious stones, Rs. 45 million worth of pearls and jewellery items. The export target for the year 1973-74 is Rs. 520 million.

To give further fillip to the export trade in these items, the Gem and Jewellery Export Promotion Council, Bombay have sponsored a trade delegation to some of the West European Countries and U.S.A. Besides assessing the existing and future potential for the items in these countries the delegation would study the new designs and fashion trends in jewellery and also explore new avenues for procurement of raw materials for export production.

COIR EXPORS FROM INDIA

The total exports of coir during the eleven months of 1971-72 amounted to 45,476 tonnes valued at Rs. 129.3 million. Exports during April-February of the previous year were 48,993 tonnes of a value of Rs. 130.5 million. The export of coir yarn, coir fibre and coir rope declined during the period under review. The finished product exports, however, showed a 7 percent increase in quantity and 14 percent increase in terms of value.

During April 1971-February 1972 the export of coir mats registered a quantitiative increase of 4.5 percent as compared to the coresponding period of 1970-71. The valuewise increase was of the order of 16.9 percent. The export of mats during the period reviewed stood at 12,389 tonnes valued at Rs. 46.46 million. In the corresponding period of the previous year export quantum was 11,857 tonnes and the value Rs. 39.73 million. The increase in exports was in respect of countries like U. K., France, Greece, Norway, Netherlands, Sweden etc., in West Europe Bulgaria, Czechoslovakia, Rumania and Yugoslavia in East Europe and Australia.

As against 1877 tonnes of coir mattings at Rs. 6.04 million exported during April 1970-February 1971, overseas supplies of the commodity stood at 2008 tonnes valued at Rs. 6.50 million in the comparable period of the next year. The major buyers of the item in general increased their intake.

Export of coir rugs and carpets improved to 3,963 tonnes amounting to Rs. 13.61 million in the first eleven months of 1971-72 as against 3,509 tonnes at Rs. 12.83 million exported during the eleven month period of 1970-71.

Export supplies of other coir items like tea leaf bags, fenders, etc., amounted to 24 tonnes valued at Rs. 87,464 during the period as against an export value of Rs. 35,934 in April 1970-February 1971. Curled coir exports also increased to 406 tonnes valued at Rs. 508,474 in the period of review. This was higher by 165 tonnes when compared to the exports effected during the corresponding period of the previous year.

Overseas sales of coir yarn amounted to 26,152 tonnes valued at Rs. 61.32 million in the eleven month period of 1971-72 as against 30,851 tonnes at Rs. 70.42 million exported in the comparable period of 1970-71. While exports of this item to U. K., France, Netherlands, Belgium, U.S.A., Canada and Japan decreased, the intake by such countries as West Germany, Italy, Greece Spain, Bulgaria, Czechoslovakia, Rumania and Australia registered improvement.

Coir fibre earned Rs. 513,686 by a quantitative supply of about 323 tonnes in the first eleven months of 1971-72 while coir rope fetched Rs. 342,382 and the export quantity was nearly 211 tonnes.

EXPORT TRADE IN PLASTICS

During the first eight months of 1971-72 many of the plastic products and linoleum witnessed an uptrend in exports. Exports of linoleum more than doubled in the period to Rs. 3.99 million as compared to the Rs. 1.56 million worth of exports effected during the corresponding months of 1970-71. During the whole of 1970-71 the export earning from this item was of the order of Rs. 4.37 million.

Similarly, overseas supplies of PVC leather cloth during April-November 1971 improved to Rs. 7.42 million from Rs. 4.65 million in April-November 1970, PVC sheeting to Rs. 3.05 million from Rs. 2.99 million, spectacle frames to Rs. 2.44 million from Rs. 1.67 million, fountain pens to Rs. 2.43 million from Rs. 2.31 million, PVC fabricated goods to Rs. 1.26 million from Rs. 0.86 million, plastic imitation jewellery to Rs. 2.70 million from Rs. 2.46 million, moulded goods to Rs. 4.96 million from Rs. 4.76 million and extruded goods to Rs. 0.85 million from Rs. 0.73 million.

In the case of plastic bangles the export improvement in the period was nearly three fold. The export value was Rs. 3.33 million as compared to Rs. 1.12 million exported in the corresponding period of the previous year. Pipes and specials had a five fold rise in exports at Rs. 376,000 as against Rs. 73,800. HDPE sacks and fabrics were added to the export stream during the period and the value was of the order of Rs. 298,300. Other plastic items fetched Rs. 140,600 during the eight month period of 1971-72.

Items like laminates at Rs. 384,000, plastic electrical accessories at Rs. 1.85 million, poly lined jute goods at Rs. 4.15 million and plastic raw materials at Rs. 1.65 million showed a declining export trend in this period.

The total export value of various plastic goods and linoleum during April-November, 1971 stood at Rs. 41.28 million.

INDIAN PARTICIPATION IN CAIRO FAIR

During India's participation in the Cairo International Fair held in March 1972, orders worth Rs. 500,000 were received for supply of welding electrodes. Business worth Rs. 1 million for various other items are under negotiation and are expected to materialise soon.

The Indian Pavilion was awarded a gold medal by Egyptian Fair Authority and a silver medal by the Governor of Cairo for excellence in display.

The pavilion had on display a wide range of products particularly heavy and light engineering goods. The participation was arranged by the Indian Council of Trade Fairs and Exhibitions, Bombay.

INDIA IN IZMIR FAIR

India will participate in the International Fair to be held at Izmir (Turkey) from August 20 to September 20, 1972. The Union Ministry of Foreign Trade is organising India's participation in this Fair.

This Fair has a special significance, as a large business turnover is made during this period. The Turkish Government offers a considerable amount of Fair quota, both for traditional and non-traditional items, to all participating countries. This year the Fair quota alloted to India has been increased by about 56 per cent over the last year's quota.

STEEL SUPPLIES FOR ENGINEERING GOODS

The Government of India has formulated a scheme for making steel available either from indigenous sources or by imports, to the extent necessary, to meet the requirements for export production, by the engineering industries during 1972-73.

In the case of imported steel, the supplies will be made by Hindustan Steel Limited against release orders issued by the licensing authorities. The supplies of imported steel will be at the Joint Plant Committee (JPC) price plus a small additional charge. This scheme will also necessitate suitable adjustments in the entitlements of registered exporters who participate in the scheme in respect of the specific export contracts.

ECONOMIC GROWTH AND INDUSTRIAL DEVELOPMENT

IRRIGATION AND POWER DEVELOPMENT

The gross irrigation potential available from major and medium irrigation projects in the country increased to 24.7 million acres in March 1972 from 23.2 million acres in March 1971. The utilisation was to the extent of 89 per cent. Irrigation potential from major and medium projects has doubled itself in the last two decades. 361 out of 576 such projects taken up since 1951 have been completed.

Per capita consumption of electricity has increased five-fold, from 18 units to 90 units. Power consumption for agriculture has been growing significantly and is almost ten per cent at present.

By the end of 1971, 115,000 villages had been electrified and 1.80 million tube wells were energised. On an average 16,000 villages and 270,000 pump sets are being electrified every year.

Flood control works executed since the beginning of the National Flood Control Programme in 1954 have benefited 6.3 million hectares of flood prone areas.

Total investments up to the end of 1971-72 are : Rs. 23,920 million on major and medium irrigation projects, Rs. 51,160 million on power schemes and Rs. 2,560 million on flood control and drainage works.

Anti-sea erosion measures executed so far have afforded protection to 80 km of coast line. Expenditure on them totals Rs. 99 million.

In the year 1971, the following power stations were commissioned : Sharavathy Hydel (8th unit of 8.91 MW) in Mysore; Kodayar Hydel (one unit of 40 MW) in Tamil Nadu; Chenani Hydel (three units of 4.6 MW) and Kalakote Thermal (one unit of 7.5 MW) in Jammu and Kashmir; Upper Bari Doab Canal Hydel (one unit of 15 MW) in Punjab; Ramagundam Thermal (one unit of 30 MW) in Maharashtra; Obra Thermal (one unit of 50 MW) and Harduaganj Thermal (one unit of 55 MW) in Uttar Pradesh.

The generating capacity at Ennore (110 MW) in Tamil Nadu, at Obra (100 MW) in Uttar Pradesh and at Bokharo (122 MW) is expected to materialise in the current year.

The rapidly increasing food and fibre requirements of the country call for a sustained programme of development of irrigation facilities and power generating capacity. Careful assessments have been made of the level of requirements in both these fields during the ten year period 1971-81 and Decade Plans have been drawn up.

By early 1981 it is estimated that an additional 55 million tonnes of foodgrains would be required. Allowing for 43 million tonnes which could be produced through other means, like improved agricultural practices, expansion of irrgated area, etc. the balance of 12 million tonnes of food will have to come from additional irrigation facilities to be created under major and medium irrigation projects. This means adding 20 million acres of irrigation area under such projects. Schemes aimed at achieving this have been investigated, identified and listed in the Decade Plan for irrigation.

The Decade Plan on power visualises the growth of installed generating capacity to 52 million KW by the end of 1980-81. After detailed studies, a Half-Decade Plan for 1972-77 has been drawn up envisaging development of additional capacity of 17.7 million KW comprising 8.5 million KW from schemes under execution, 5.5 million KW from extensions at developed sites, and 3.5 million KW from new schemes to be taken up during the period.

Under rural electrification, 4.87 million pump sets are to be energised and 233,000 villages electrified during the period 1971-81.

INDUSTRIAL MACHINERY

A PROFILE

With the growing emphasis laid in the successive Five Year Plans on the development of the industrial machinery sector, there has been a marked progress in the quantum and range of manufacture in this sector. The production range has particularly expanded and many new lines including the manufacture of ancillary items have been developed. Such diversification, while providing stability and viability to the industry has brought about scope for increasing import substitution and export earning.

The following is a review of some of the industrial machinery manufactured in the county.

There are 59 units in the private sector registered for the manufacture of different types of chemical and pharmaceutical machinery with an annual licensed capacity of Rs. 309.5 million. Out of these 57 units are in production with an installed capacity of Rs. 274 million. The estimated production of these units during 1971 was of the order of Rs. 183.3 million which is an improvement when compared to the 1970 production of 170 million. Besides these units there are 3 undertakings in the public sector who are manufacturing different types of pressure vessels, heat exchangers, etc. and the total annual capacity is of the order of 25,300 tonnes. Of these 3 units, 2 units are in production for sometime now and the third one has recently entered the production stream.

The existing units in this sector manufacture different types of plants such as sulphuric acid plant, super phosphate plant, water treatment plant, solvent extraction plant, fatty acid plant, alcohol plant and a number of other equipment such as pressure vessels, heat exchangers, etc. M/s. Bharat Heavy Plates and Vessels Ltd., Visakhapatnam and the Heavy Engineering Corporation, Ranchi, both public sector undertakings, have in their programme of manufacture included such items as ultra high pressure vessels of multi-layer and forged types. The Central Mechanical Engineering Research Institute, Durgapur, have also undertaken the design of high pressure vessels required for ammonia and urea synthesis. A firm in the private sector has been licensed recently for the manufacture of multi-layer vessels. Another firm is to take up the manufacture of liquid ammonia tanks which are required for fertiliser industry. Manufacture of air receiver has been taken up for production for the first time in the country during 1971.

With the development of nuclear power generation, there has been a rise in the demand for equipment required by the power projects. Some of the existing manufacturers of chemical machinery are taking up he fabrication of certain equipment for nuclear power generation. Few proposals in this regard are under consideration of the Government.

Manufacture of pulp and paper machinery was tarted in a regular way in 1960. The manufacturing capacity has been set up in four categories viz. small plants upto 20 tonnes per day capacity, medium paper plants of 50 tonnes per day capacity, large scale plants of 150/200 tonnes capacity per day and miscellaneous tems such as foundrinier wire cloth, brown stock washers, etc.

Currently there are 13 units in production with an annual licensed capacity of Rs. 113.8 million and an installed capacity of Rs. 65.6 million. The actual output has gone up from Rs. 23.5 million in 1967 to Rs. 34 million in 1970 and an estimated Rs. 51.6 million in 1971.

The broad types of plants manufactured by the units in the line are complete small scale paper plants, complete board mill plants, paper coating plants, tissue making plants, foundrinier wire cloth for paper making machine, brown stock washers and bleach washers, bamboo chippers, screen, shells and blocks for conical refiners and calendar bowls. The indigenous manufacturers are also capable of manufacturing complete large scale paper and pulp making plants.

In view of the gap between demand and installed capacity for paper and pulp plant of 150/200 tonnes capacity, schemes of manufacture of such plants have been taken up and a few of letters of intent have been issued in 1971.

A manufacturer of phosphor bronze and tombac wire cloth for paper industry is to start shortly production of synthetic wire cloth from trivera mono-filament wires.

The coal mining machinery sector is now in a position to meet practically the entire requirement of the country for such items as coal cutters, loaders, haulages, winders, coal combines, conveyors, mine pumps, axial fans, booster fans, shuttle cars, mine locomotives, etc. Besides the units in the private sector which are already in production, a public sector unit in Durgapur with an ultimate capacity of 45,000 tonnes of coal machinery per annum has also commenced production. The total number of units licensed at present are 12 including the public sector unit of which 9 units are in production. The total licensed capacity is of the order of Rs. 370 million out of which the current installed capacity is around Rs. 300 million. The actual output of machinery increased to Rs. 40.1 million in 1971 from Rs. 21.5 million in 1970.

Three units are licensed for the manufacture of steel plant equipment. Out of these two units are in the public sector and one in the private sector. The public sector unit in Ranchi has a capacity to produce 80,000 tonnes per year of different types of plants and equipment like coke oven equipment, ladle cars, pig casting machines, winders, excavators, drilling rigs, grinders, etc. The unit is currently engaged in the manufacture of equipment required for the Bokaro Steel Plant. The second public sector unit at Naini with an annual capacity of 2,000 tonnes is to turn out crucibles, blast furnace and plate work. The manufacturing unit in the private sector has a capacity of 1200 tonnes of machinery per year covering not only steel plant equipment but also other machinery items such as paper and pulp, cement, chemical etc. The output in this sector at Rs. 162.8 million worth registered an uptrend in 1971 as compared to 1970 when the production was of the order of Rs. 116 million worth.

Besides meeting a large part of the internal demand some of these machinery items have entered the export field too. During the year 1970-71, the export value of paper and pulp machinery was of the order of Rs. 0.40 million, while chemical plants earned Rs. 0.60 million. The export value of water treatment plant stood at Rs. 0.93 million. Other items like solvent extraction plant, autoclaves, foundrinier wire cloth etc. also find a place in the export trade of industrial machinery.

PRODUCTION TREND IN CHEMICALS

A number of chemical items have been showing a steady production uptrend in recent years. More and more items are added to the production stream every year. During 1971 electrolytic manganese dioxide was produced for the first time in the country. This chemical is a vital raw material for the manufacture of dry batteries. Some manufacturing units have plans to take up the production of manganese dioxide as a by-product in the manufacture of manganese metal. A licence has been issued to a unit in Tamil Nadu for taking up the production of brighteners and nickel plating salts and a letter of intent was issued to a party in Gujarat for establishing manufacturing facilities for bright plating salts, brighteners and additives. A unit engaged in the manufacture of pottasium permagnate extended its activities to cover production of potassium carbonate also. A number of entreprenuers have shown interest in the manufacture of such chemicals as cyanides, ferro-cyanides, ferri-cyanides and magnesium oxide for which no capacity exists in the country. Cyanides form important raw material for manufacture of heat treatment salts.

With 8 units in the production line and an installed capacity of 1660 tonnes, the production of nickel sulphate, one of the basic electroplating salts, stood at 470 tonnes in 1971. Chromic acid, another basic electroplating salt had a production out-turn of 550 tonnes in 1971 and the installed capacity in that year was of the order of 1,125 tonnes. Output of nickel chloride in the period was 73 tonnes with 223 tonnes as the installed capacity.

Among the heat trearment salts cyanide type improved in production performance by nearly 100 tonnes in 1971. The production in that year was 820 tonnes as against 720 tonnes in 1970. The installed capacity too increased in the year to 23,760 tonnes from 1,800 tonnes in the previous year. However, output of non-cyanide type decreased to 660 tonnes in 1971 from 879 tonnes in 1970. The installed capacity for this item was expanded to the extent of 2,460 tonnes from 900 tonnes. A similar downtrend in production was witnessed in the case of tempering salts.

In the group of water treatment salts, sodium tripolyphosphate witness a 47 per cent increase in production in 1971 as compared to 1970. The actual output rose to 13,430 tonnes from 9,136 tonnes. The present installed capacity is of the order of 12,500 tonnes. Sodium aluminate, another item in this group, registered a marginal increase in production at 860 tonnes as compared to 796 tonnes and the capacity installed is of the order of 1620 tonnes. In the case of sodium hexameta phosphate and alfloc powder, the production out-turn in 1971 were of the order of 403 tonnes and 450 tonnes respectively.

Two units have proposals for taking up the production of sodium tripolyphosphate. One of the units plans to take up this production under the expansion programme of its integrated complex and the other has a scheme for its independent manufacture alongwith other industrial phosphates.

The country's requirements of foundry chemicals during 1971-72 was mostly met indigenously. Production of various foundry chemicals recorded an increase of about 30 per cent. Fluxes were produced to a quantity of 780 tonnes in 1971 whereas binders had an output of 3,210 tonnes. Dressings and exothermics with 620 tonnes and 900 tonnes of production respectively were the other items under the foundry chemicals group.

The production of gas welding stood at 70 tonnes in 1971 and the output of sub-merged arc welding was of the order of 197 tonnes.

The production of potassium permangnate stood at 940 tonnes in 1971 while activated bleaching earth recorded an output of 2,450 tonnes. The installed capacity for these two items were of the order of 1,920 tonnes and 3,648 tonnes. Celex sulphite lye with an installed capacity of 10,200 tonnes were manufactured to the extent of 8,200 tonnes in 1971. Rare earth chloride increased its output to 4,000 tonnes in 1971 from 3,734 tonnes in 1970.

Production improvement has been noted in the case of barium salts also. Barium nitrate improved to 1,430 tonnes in 1971 from 554 tonnes in 1970. Similarly, barium carbonate went up to 2,640 tonnes from 797 tonnes. The requirement of barium salts in the country is being met from indigenous production. One of the cement manufacturing units plans to take up for production a new item in barium salts. Besides, another unit is likely to expand its production efforts, thus resulting in much larger output.

STEEL CASTING PLANT GOES ON STREAM

The continuous steel casting plant at Arakonam in Tamil Nadu is ready to go into commercial production. The Rs. 75 million plant will convert scrap into billets and will meet the needs of the re-rolling units in Tamil Nadu.

The plant will have an initial production capacity of 50,000 tonnes. Efforts are already on to instal a second arc furnace which will double the capacity. The plant is expected to achieve 70 per cent of its initial capacity during the current year and its full rated capacity next year.

In the first stage the plant would produce only mild steel required by re-rollers, but in the subsequent stages is to take up the production of special and alloy steels. The four strand concast machine installed at the plant is the first of its kind in the country.

STEEL PRODUCTION BY HSL

Output of ingot steel by the three main plants of Hindustan Steel Ltd. during 1971-72 aggregated 3.476 million tonnes and of saleable steel to 2.598 million tonnes. Despatches during the year amounted to 0.849 million tonnes of pig iron and 2.634 million tonnes of rolled steel.

The Bhilai Steel Plant's output of ingots and saleable steel as also despatches of saleable steel at 1.953 million tonnes, 1.568 million tonnes and 1.558 million tonnes respectively, were the highest achieved so far during any year. The previous best figures of 1.940 million tonnes of ingots, 1.549 million tonnes of saleable steel and 1.528 million tonnes of despatches were achieved during 1970-71. Billet mill and wire rod mill established record outputs during the year 1971-72.

During the month of March, 1972 Bhilai Steel Plant established a number of performance records in respect of ingot steel, total saleable steel and finished steel output from the rail and structural mill and the merchant mill and rolled steel despatches. Similarly the despatches of total saleable steel were the highest achieved so far. Another outstanding feature during the month was that the output from each of the three finishing mills and of total saleable steel, exceeded the average monthly rated capacities.

The Rourkela plant produced during the year 0.823 million tonnes of ingot steel and 0.597 million tonnes of saleable steel and despatched 0.614 million tonnes of saleable steel.

PRODUCTION RISE IN EARTH MOVING EQUIPMENT

Bharat Earth Movers has registered an increase of about 30% in its production of earth moving equipment during the year 1971-72. It manufactured 444 machines including scrapers, haulpak rear dumpers, motor graders and crawlers and wheeled tractors valued at nearly Rs. 260 million.

The undertaking also manufactured 273 rail coaches valued at over Rs. 70 million bringing the total annual turn-over to over Rs. 330 million. The total production in 1970-71 was of the order of Rs. 268 million.

The indigenisation programme of the company is now being speeded up. It is expected that the indigenous content of the earth moving machines, which has already reached 60 to 65 per cent would rise to 80 to 85 per cent in the next two years.

The rail coach division of the undertaking, which is working to its optimum capacity, is being expanded and its production is expected to go upto 400 coaches a year by 1974-75.

NEW HEAVY ELECTRICAL PRODUCTS

In 1971-72 the Switchgear Division of Heavy Electricals Ltd., Bhopal, produced for the first time in the country sophisticated controls for DC loco equipment of Indian Railways, heavy current rectifier equipment for Caustic Soda plants and special type capacitors for rural application.

This division, manufacturing switchgear controlgear, rectifiers and capacitors, exceeded the target of production set for the year 1971-72. It turned out equipment worth Rs. 78.5 million as against the target of Rs. 77 million.

STANDARDIZATION AND TECHNOLOGICAL PROGRESS

STANDARDIZATION MARCHES AHEAD

Nearly 7000 Indian Standards have been formulated by the Indian Standards Institution (ISI) so far. These include about 1000 Standards of direct interest to consumers such as, inks, biscuits, baby foods, paints, hosiery goods, cutlery, sports goods, domestic electrical appliances, pressure cookers, leather shoes, door closers, gas cylinders, building materials, spark plugs, flash lights, metalclad switches, electric cables, etc. More than 80 per cent of the Standards have been adopted by various organisations in the country.

For the formulation of the Standards, the Institution functions through its nine Division Councils, which are responsible for the work of standardization in their respective fields, namely, agricultural and food products, chemicals, civil engineering, consumer and medical instruments, electro technical, mechanical engineering, structural and metals, textiles and marine, cargo movement and packaging.

The ISI is operating a Certification Marks Scheme for providing an effective means to implement national standards and for bringing the advantages within the reach of the consumer. Started in 1955-56, the Scheme has made rapid strides. Nearly two thousand licences are in operation covering goods of the annual production value of more then Rs. 4,500 million. These licences cover a range of 570 products including many consumer and industrial articles such as, biscuits, infant milk foods, pesticides, inks, cables and conductors, jute products, tea chests, etc. All steel produced by the steel mills has been covered under the Scheme. Besides, some important items like aluminium utensils, tea chest plywood panels and hattens, flashlights and enamelware cannot be exported out of the country unless they carry ISI Mark.

To keep a check on licences using the ISI Mark, the Institution has, over the years, set up laboratories at New Delhi and also on a smaller scale at its branch offices in Bombay, Calcutta and Madras. At present, ISI laboratories have a capacity of testing about 6,000 samples a year. By the end of 1973-74, this capacity is expected to reach the level of over 10,000 samples. These facilities are, however, not adequate. It is, therefore, proposed to set up a Central Laboratory at Ghaziabad. Efforts are also being made for constructing a laboratory at Madras in a year or so.

The institution is also organising both intensive and extensive training in standardisation. Besides, training Indian personnel, the training facilities are extended to other countries in Asia and Africa. So far 47 participants from Burma, Ceylon, Ghana, Kenya, Malaysia, Philippines, South Yemon, Thailand, ARE and Zambia have been trained by the institution.

RESEACRH IN TEXTILE INDUSTRY

A number of instruments and processes have been developed by the Ahmedabad Textile Industry's Research Association (ATIRA) to help modernise the textile industry.

ATIRA's activities are geared to the present and future requirements of the industry. Accordingly, basic research, applied research development consultation and training have been adopted by the research unit as its programme of work. Its efforts are mainly directed towards improving the present technology which will ultimately result in increasing productivity and reducing costs.

The major task of basic research undertaken by ATIRA is to study the fibre structure as well as modifications of cellulose and other poly saccharides. A number of techniques such as X-ray diffraction, optical microscopy, spectroscopy and absorption of dyes and other agents are being adopted by the Association for this purpose,

Cost reduction and better ultilisation of cotton are sought to be achieved by lowering the levels of process waste in opening, carding and combing without sacrificing the quality of the product. The research is expected to help reduce end breaks, increase spinning productivity and improve yarn quality. New methods of spinning are also being examined.

Efforts also being made to increase weaving productivity and enhance quality by developing new sizing materials and by modifying plain and automatic looms.

Easy care finishes for cotton and polyster blends are being developed to meet consumer demands. Efficient control methods to reduce consumption of dyes, chemicals and auxiliaries have also been devised.

In the field of textile engineering, heat economy and reduction in water consumption are the major objectives of the Association. Modifications have been made in the existing washing machines to reduce water consumption by about 30 per cent. Besides, a host of instruments for testing, quality control and process control have been developed and marketed. Few more are now under development.

Oxidised starch, a product of ATIRA has successfully replaced imported starch derivatives used in paper industry. Its permanent press finishing process has also been made available to the Indian industry. Similarly the Association has developed suitable indigenous product which can substitute sodium alginate. A short time bleaching process introduced by the unit has resulted in shortening the process time by 40 percent. Another product designed and developed by the research organisation is a drying machine.

NEW ANTI-CORROSION PAINT DEVELOPED

A new paint based on vinyl to protect hulls of ships against corrosion has been developed by the Naval Chemical and Metallurgical Laboratory, Bombay. The use of the new paint would increase the docking schedule of naval ships from 9 monthts, as at present, to 15 months.

After 15 months only 10 to 15 per cent of submerged hull area require coating with anti-corrosive compositon. Presently, hulls require complete repainting after every 9 months.

The new composition developed by the Laboratory is manufactured from indigenous raw-materials.

MACHINE TOOLS AND SMALL TOOLS

There are nearly 112 units in India, in both public and private sectors, manufacturing all types of general purpose machines, and several complex special purpose machines. The machine tool industry, a core industry, has rapidly expanded and diversified its production to meet the specific needs of the country's large and small-scale sectors, as well as to satisfy the exacting requirements of foreign buyers.

Production of machine tools increased from about Rs. 10 million to an estimated value of Rs. 450 million in 1971 and is expected to reach Rs. 650 million by 1973-74.

Production Range

The range of the machine tool being manufactured in the country cover such items as centre lathes, roll lathes, capstan and turret lathes, drilling machines, including radial and multi-spindle types, milling machines (horizontal, vertical and universal knee types) cylinderieal grinders, tool and cutter grinders, horizontal and vertical spindle surface grinders, crank shaft grinders, gear hobbers and gear shapers, fine boring machines, vertical and horizontal boring machines, shaping machines, slotting machines, planing machines, plate edge planers, metal sewing machines, unit head, power hammers, mechanical and hydraulic presses, guillotine shearing machines, seaming machines, nibbling machines, electric and gas welding machines including spot welders, submerged arc welders, seam welders, argon arc welders, furnaces of various types, pneumatic tools, portable electric tools, wood working machines, wire drawing machines, plastic processing machines, shot blasting machine die casting machines, rolling mills, metal testing machines, cable making machines, sand moulding machines, induction heating equipment, various types of machine tool accessories, hydraulic equipment like pumps, valves etc.

Some of the new items of machine tools whose production has already been established or is to be established soon are : drum type turrets, single spindle and multi-spindle automatics, high precision multi-tool lathes, copying lathes, broaching machines, chucking automatics, drilling machines with quick setting arrangements, cridan threading machines, special purpose machines, presses and press brakes of higher capacities, higher capacity plastic working machines, bigger and diversified types of heat treatment and melting furnaces, glass working machines etc.

M/s. Hindustan Machine Tools Ltd. a public sector project with plants at Bangalore, Pinjore, Kalamessery and Hyderabad, have played a major role in the development of the machine tool industry in India. M/s. HMT have contributed more than 50 per cent of the total indigeneous production of machine tools. The firm has also set up design facilities in their work. Apart from turret lathes, hand operated cylinderical grinders, carbide tipped tool grinding and lapping machines and 450 mm height of centre lathes, the firm have developed a small chucking automat. It has also recently taken up the manufacture of cold chamber die casting machines, plastic injection moulding machines and production jig borers.

The other major public sector unit M/s. Heavy Machine Tool Plant at Ranchi have also diversified their production range to include such items as axle turning and burnishing lathes. wheel lathes, etc. They are to take up soon the manufacture of special machine tools required by the Indian Railways.

Besides the public sector units, the manufacture in the private sector too have added many new types of sophisticated machine tools to their production stream. The diversification undertaken by the manufacturing units has paid dividends. The industry is now in a position to meet the entire demand of general purpose machine tools and 70 to 75 per cent of highly sophisticated special purpose tools required for the engineering and machine building industries.

With product diversification and increased production, the industry has made a good progress in the context of import substitution. The import content has been reduced considerably and in some of the highly sophisticated machine tools it is as low as 10 per cent.

Research and Standardisation

Besides the research facilities available with the manufacturing units, a centralised research establishment the Central Machine Tool Institute was set up in Bangalore. The main function of the Institute is to assist the machine tool industry in all technical aspects of development. It undertakes research on machine tool engineering and technology, design of machine tools and effects improvements of existing designs.

Besides the Bangalore Institute, the Central Mechanical Engineering Research Institute, Durgapur is also engaged in research and development of machine tools.

The Indian Standards Institution with the cooperation of the manufacturers, consumers and the Government has evolved acceptance standards for various types of machine tools.

Small Tools and Handtools

Small tools and handtools cover a wide range of items from machine tool accessories to shoe maker's hammers and goldsmith's pincers. In general, however, small tools refer mainly to cutting tools, the tools of hard metal. The modern small tools are the twist drills, reamers, milling cutters, measuring tools and the accessories to machine tools. Augers, chisels, gimlets, hammers, screw drivers and the like are defined as handtools.

Starting production in the late 30's the organised sector manufacturing small tools had an outturn of 10.1 million twist drills, 187,000 reamers and 302,000 milling cutters.

Apart from cutting tools the industry produces accessories like threading taps and dies, lathe mandrels, drill sleeves, surface platers, sine bars, and various measuring instruments. Production of tool room accessories like grinding wheels and abrasives is also increasing gradually.

Steel files the commonest of tools used by every industrial establishment is at present manufactured by six units and the actual production in 1971 was of the order of 14.13 million numbers. The principal varieties produced are flat, round and half round files.

In 1971 there were 5 units making grinding wheels whose total output was 8.16 million kg. In the same year 3 manufacturers of coated abrasives had a combined output of nearly 204 thousand reams. The actual production in 1971 of 13 manufacturers of threading tools was nearly 2.82 million numbers.

Five manufacturers of bandsaw blades for wood produced 1.30 million running metres of such blades, while four manufacturers of metal working bandsaw blades produced 1.34 million running metres in 1971. Hacksaw blades are manufactured by 6 units in the organised sector, their combined annual output was nearly 26.36 million numbers. Manufactured by 18 units actual production of milling cutters in the country was of the order of 338,800 numbers in 1971. The output of four firms manufacturing tungsten carbides (tips) stood at 93,714 kg. The Tungsten carbide (tipped tools) are made by 6 firms whose production in 1971 was 1.09 million numbers. Lathe tools (tool bits) are now manufactured by 10 units and their output in 1971 amounted to 963,5000 numbers. Diamond drill bits are manufactured by 5 units whose production was nearly 31 thousand numbers. Six units manufacture industrial knives in the organized sector and their output was 253,400 numbers and 8 units manufacture forged handtools with an output worth about Rs. 64.3 million. Nearly 2.3 million numbers of measuring tapes were turned out by the 2 units engaged in the line.

There is a large number of small scale units besides a few organised ones engaged in the manufacture of handtools. The total production of handtools in the country is estimated to be about 5000 tonnes per annum.

The range of handtools manufactured in the country includes open jaw spanners, bihexagon spanners, adjustable wrenches, pipe wrenches, socket spanners and attachments, cold chisels and punches, screw driver book spanners, pliers, wheel nut wrenches, grip wrenches, hand and breast drills, hammers etc. The small tools and handtools manufactured in India, have been brought under compulsory quality control and preshipment inspection.

Exports

The machine tool industry has lately come to occupy a noteworthy position in the engineering exports of the country. From Rs. 7.5 million in 1965-66 the export earnings rose to Rs. 28.4 million in 1970-71.

The itemwise composition of exports was : lathes, Rs. 8.59 million; boring, broaching drilling and threading machines, Rs. 5.68 million; milling, planing, shaping, gear cutting and slotting machines, Rs. 3.82 million; grinding, lapping, honing, polishing, sawing and filing machines Rs. 784,000; metal forming machinery like bending and forming machines, hydraulic presses, rotary shears and other punching and shearing machines, forging machines, rivet machines and others Rs. 2.80 million.

As to the direction of exports, lathes were mainly sent to Australia, A. R. E., Canada, Ceylon, Federal Republic of Germany, Malaysia, Netherlands, New Zealand, Sudan, Thailand, Uganda, U.S.A., and Yugoslavia. The main importers of boring, broaching and threading machines were Australia, Belgium, Netherlands, Ceylon, Nepal and Sweden. Milling, planing, shaping, gear cutting and slotting machines proved to be popular in Australia, New Zealand, Ceylon, Federal Republic of Germany, Malaysia and Netherlands. For metal forming machinery the main directions were Ceylon and Sudan.

During the first six months of 1971-72, the export value of metal working machinery amounted to Rs. 12.40 million.

The development of the machine tools industry in the country employing over 28,000 persons has created a well trained technical force in all categories of production. The industry is backed by a large number of designers, production engineers and other personnel at managerial level. With this background, it is possible for India to offer assistance to other developing countries, turnkey projects for setting up machine tool plants. The assistance that India can offer in the field includes preliminary surveys, supply of design and production documentation, training of technical personnel and establishment of complete production plants.

Most of the world markets particularly among the developed countries have by now realised India's competitive position in her export trade of small tools and hand tools. Comparted to the value of 1969-70 at Rs. 26.5 million, overseas supply of these tools has risen sharply to Rs. 43.8 million in the following year.

A wide variety of handtools made in India have already established their reputation in international markets. Pipe wrenches, pliers, spanners, steel foils, tungsten carbide tips and powders, twist drills, vices and diamond tools and bits are the most prominent items of export in the line. In 1970-71 export of spanners, was mainly responsible for the uptrend in the overall

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offtake of handtools. Their export value improved from Rs. 5.5 million in 1969-70 to Rs. 13.14 million in the following year. Czechoslovakia, U.S.S.R., U.K., West Germany, Greece, Philippines, South Viet Nam, Iran, Australia, Canada, Thailand, and U.S.A. figured in the list of importers.

Pipe wrenches were mainly exported to U.S.A. whose intake value was Rs. 4.9 million out of the total exports of this category at Rs. 6.9 million (only Rs. 0.9 million in 1969-70). Canada, Australia, Iran, Sudan and A.R.E. were the other important markets.

Steel files were also mainly exported to U.S.A. at Rs. 1.4 million. France, West Germany, Indonesia, Kenya, Nigeria, U.K., Thailand, Sweden, Singapore and Sudan imported substantial quantities of files whose total export value in the year was Rs. 6.23 million (Rs. 4.25 million in 1969-70).

Twist drills constitute another line of export. The export value of this category was Rs. 5.7 million in 1970-71 (Rs. 4 million in 1969-70). Here again U.S.A. was the major market at Rs. 1.4 million followed by Netherlands, West Germany, Canada, Poland, U.K. A.R.E., Thailand and Sweden.

The export value of pliers in 1970-71 was Rs. 1.5 million while that of tungsten carbide tips and powders Rs. 2 million, vices Rs. 1.3 million and diamond tools and bits over Rs. 2 million. Export of these items in 1969-70 were Rs. 0.7 million, Rs. 1.4 million, Rs. 0.6 million and Rs. 86,000 respectively.

The export earning from small tools and hand tools is steadily going up and stood at Rs. 26.95 million during April-September 1971 as against Rs. 18.12 million worth of overseas supplies made in the comparable period of 1970-71. ☐

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EXPORT GROWTH OF NON-TRADITIONAL PRODUCTS

More and more non-traditional items from India are being sought after by world markets as is evident from their growing percentage in the total exports of the country. From 36.1 percent in 1968-69 the share of the non-traditional sector in the total exports went upto 39.3 percent in 1969-70 and further rose to 41.6 percent in the subsequent year. The total export value of this sector improved to Rs. 6382.9 million in 1970-71 from Rs. 5559.5 million in 1969-70 and 4900.2 million in 1968-69.

The engineering sector recorded an export outturn of Rs. 1164.7 million in 1970-71 as against Rs. 895 2 million in 1969-70 and Rs. 674.2 million in 1968 69. In this group, transport equipment rose to Rs. 309.5 million from Rs. 167.7 million and Rs. 164 million, non-electrical machinery to Rs. 280.8 million from Rs. 240.4 million and Rs. 139.5 million, electrical machinery to Rs. 160.8 million from Rs. 145.5 million and Rs. 132.8 million and metal manufactures to Rs. 388 million from Rs. 321 million and Rs. 221.7 million. Iron ore exports touched Rs. 1172.8 million in 1970-71 from Rs. 946.2 million in 1969-70 and Rs. 884 million in 1968-69 while iron and steel increased to Rs. 792.3 million from Rs. 771.2 million and Rs. 745.5 million.

The export growth of chemical and allied products was to Rs. 293.6 million in 1970-71 from Rs. 221.9 million in 1969-70 and Rs. 175.1 million in 1968-69. Similarly sugar exports improved to Rs. 275.7 million from Rs. 85.6 million and Rs. 101 million while mineral fuels, lubricants and related materials went upto Rs. 125.8 million from Rs. 94.9 million and Rs. 121 million. Exports of rubber manufactures showed an increase at Rs. 70.5 million as compared to Rs. 49.3 million and Rs. 47.1 million worth of exports in the previous two years. Paper and paper board rose to Rs. 54.1 million from Rs. 48.8 million and Rs. 51.4 million while ferro-manganese and ferro alloys increased to Rs. 113.9 million from Rs. 96.7 million and Rs. 44.8 million.

The export performance of cotton apparel and other manufactures in 1970-71, 1969-70 and 1968-69 was Rs. 257.1 million, Rs. 184.7 million and Rs. 176.6

million respectively and that of fabrics of art silk, synthetic fibre and spunglass stood at Rs. 52.4 million, Rs. 35.9 million and Rs. 35 million. Fish and fish preparation exports in these three years were of the order of Rs. 312.8 million, Rs. 308.3 million and Rs. 221.7 million.

Among the many exporting units who have contributed to the export growth of the non-traditional sector, M/s. Gujarat Export Corporation Ltd., Udyog Bhavan, R. C. Marg, Ahmedabad–9 have exported a good quantity of engineering and other items. Recently they have secured export orders for such items as machine tools, centrifugal pumps, textile machinery and other industrial machines, diesel engines and parts, cylindel liners, hose couplings, bright bars, chokes, sluice valves, footwer, and automobile ancillaries as also handicrafts. The total value of the orders is about Rs. 1.04 million. These orders have come in from countries like U. K., U. S. A., Netherlands, Iran, Iraq, Saudi Arabia, Sudan, Jordan, Zambia, Kenya, Uganda, Newzealand, Mauritius, Singapore and Nepal.

In addition to the firm orders already under execution the corporation has received enquiries for items like cotton waste in cones, reinforced rubber lined hoses and rubber hoses, rofled strips (feullards), candle manufacturing machinery, jacquard material, razor blades, wire netting, acetyl salicilic acid, isomazid P. A. S. salicyamide, beam and angle bending machine and lining cloth from West Germany, Burma, Syria, Nigeria, Australia, Blantyre, Kenya, Lebanon, Sudan and Mauritius. Earlier the corporation had booked orders worth Rs. 4 million for export of diesel engines.

FISH AND MEAT PREPARATIONS IN EXPORT TRADE

India's export of fish and fish preparations in the first six months of 1971-72 stood at Rs. 154.03 million as against Rs. 149.65 million exported during the corresponding period of 1970-71. Meat and meat preparations earned Rs. 6.12 million in the first half of 1971-72.

A single exporting firm M/s. Costa and Co. P. Ltd., P. O. Box 16, Aquem Alto, Margao, Goa have firm export orders from Hong Kong and Singapore for such items as fish, prawn, sardines, chicken and meat curries, corned beef, mango slices and pulp and cashew nuts. The supplies are to start shortly and the average monthly value of such supplies will be around Rs. 236,000.

Beside the orders on hand, the Goa firm manufacturing canned fish, canned meat and canned fruits has overseas enquiries for its products from West Germany, U. K., Belgium, France, U.S.A., Canada, Japan, Hong

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Kong, Singapore, Malaysia, Sudan and Kenya. These enquiries cover a supply of 25,000 cases of assorted products at an approximate value of Rs. 3.6 million. The firm has additional capacity for 3 million cans of fish meat and fruit products of a value of Rs. 4.00 million.

INDIAN PAINTS TO SOVIET UNION

India-made paints and varnishes are growing in popularity in world markets. About Rs. 13.15 million worth of pigments, paints, varnishes and related materials were exported from the country in the first half of 1971-72. In this performance, prepared paints, enamels, varnishes, laquers etc. had a share of Rs. 11.33 million while pigments and related materials accounted for Rs. 1.51 million. The export value of printing inks during the period stood at Rs. 310,045.

In the group of prepared paints, varnishes, enamels etc. the major item of export was varnishes with overseas supplies amounting to 983,841 kg. valued at Rs. 5.79 million. Synthetic enamels brought in Rs. 1.71 million through an export quantity of 394,810 kg. Ready mixed and other paints earned Rs. 2.51 million and the quantity exported was of the order of 594,928 kg.

U.S.S.R. is the largest importer of prepared paints, varnishes and enamels. During the first six months of 1971-72 that country absorbed about 940,745 kg. of varnishes at a value of Rs. 5.64 million, 165,477 kg. of synthetic enamels at Rs. 0.96 million and 155,835 kg. of other paints at Rs. 0.91 million.

During the year 1970-71 too, the Soviet Union imported as much as 2.82 million kg. of synthetic enamels at Rs. 16.11 million, 1.53 million kg. of varnishes at Rs. 9.89 million and 262,675 kg. of other paints at Rs. 1.54 million. Total exports of pigments, paints, varnishes etc. during 1970-71 amounted to Rs. 45.02 million.

The growing demand for Indian paints and varnishes in the U.S.S.R. is again proved by the repeat order received by an Indian paint manufacturing unit, M/s. Blundell Eomite Paints (P) Ltd., Rustom Building, 29, Veer Nariman Road, Bombay-20 (BR). The repeat order is for the supply of 400,000 litres of white synthetic enamels at a cost of Rs. 2.2 million. The enamel will be packed in one litre tins printed in Russian language. The supplies against this order are to be completed by December, 1972.

The paint industry has greatly widened its production range in recent years. From general purpose types, the industry has now taken up the production of sophisticated finishes. In the organised sector of the paint industry, there are presently 18 units with an installed capacity of 106,300 tonnes for the manufacture of paints, enamels and varnishes. Actual production in 1971 was of the order of 66,000 tonnes in the case of paints, enamels and varnishes and about 4000 tonnes in respect of wire enamels and impregnating varnishes. Besides the 18 organised units, there are more than 250 small scale units in the country manufacturing a wide variety of paints and varnishes.

EXPORT OF CHEMICALS TO U. K.

Registering more than 100 percent increase, the export of organic chemicals during the first half of 1971-72 amounted to Rs. 20.35 million as against Rs. 10.01 million worth of exports effected during the same period of 1970-71. During the entire year 1970-71, the export value of such chemicals was of the order of Rs. 33.11 million. This was a 166 percent increase when compared to the 1969-70 export performance at Rs. 12.47 million.

Among the organic chemicals, such organo inorganic hetrocyclic compounds as alpha picoline, gamma, hydroxy quinoline salts, sulphanamide excluding medicaments) etc. are also active in the export trade. During 1970-71 nearly Rs. 1.14 million worth of supplies of these compounds were effected to Netherlands, U.S.A. and Federal Republic of Germany.

During the first half of 1971-72 export sales of these items brought in Rs. 144,086. U. K. imported Rs. 125,752 worth of alpha picoline.

Among the organic chemical exporters, M/s. Warner Hindustan Ltd., Warangal Road, Uppal, Hydrabad-13 recently supplied a big consignment of alpha picoline, pyridine and bases to U. K. With the execution of this order the Hydrabad firm has supplied so far 203 tonnes of these basic organic chemicals. Besides meeting the entire internal demand of about Rs. 1.00 million worth, the firm is in a position to offer larger quantities of their products for export supplies too.

EXPORT PERFORMANCE AND POTENTIAL

RECORD EXPORTS OF CASHEW

Cashew exports from India have touched a new high both in quantity and value during 1971-72. Nearly 60,834 tonnes of cashew kernels valued at Rs. 620 million were exported during the year. U.S.A., the major market for Indian cashew kernels imported more than 27,000 tonnes accounting for 44.7 per cent of the total exports. The intake by U.S.S.R. the second largest buyer was of the order of 19,000 tonnes representing 31.2 percent of the total exports. Canada, U.K., Japan, Australia, G.D.R., Netherlands and Hong Kong were the other major directions during the year.

Export of cashew shell liquid during 1971-72 amounted to 5500 tonnes at Rs. 6.23 million as compared to 6926 tonnes at Rs. 7.86 million exported in the previous year.

Imports of raw cashew nuts during the year stood at 169,772 tonnes valued at Rs. 279 million.

EXPORT PERFORMANCE OF SHELLAC

Registering an upward trend, shellac exports in 1971-72 earned nearly Rs. 9.2 million more than the previous year. Exports during 1971-72 had been placed at Rs. 12,750 tonnes valued at Rs. 59.5 million as against 13,372 tonnes at Rs. 50.3 million exported in 1970-71. The higher export earning in spite of a quantitative fall indicate a better unit price realisation in 1971-72.

India is the leading lac producer in the world having a share of more than 60 percent of the world trade. In 1969-70 of the world's production of sticklac of 26,742 tonnes, India's share amounted to 25,742 tonnes, in 1968-69 it was 49,597 tonnes and 29,598 tonnes, in 1967-68, 46,979 tonnes and 38,779 tonnes. India's production in 1970-71 was of the order of 24,560 tonnes.

EXPORT RISE IN LIGHT ELECTRICALS

From Rs. 6.04 million in the first half of 1970-71 to Rs. 10.97 million in the first half of 1971-72 was the improvement in the export sales of domestic electrical equipment. During the latter period the major item of export in the group was ceiling fans which accounted for Rs.9.0 million and the quantity exported was 88,258 numbers. Iraq was the major market with an intake of 30,366 numbers amounting to Rs. 2.89 million followed by Kuwait with 20,400 numbers at Rs. 2.02 million. The other major buyers were Sudan with 14,414 numbers at Rs. 1.49 million, Nigeria with 6,600 numbers at Rs. 0.79 million and Iran with 5,996 numbers at Rs. 0.56 million. Other types of fans such as table fans, pedestal fans, rail carriage fans, air circulators and portable blowers earned Rs. 201,101. Regulators and parts for electric fans fatched an amount of Rs. 573,589.

Among the other electrical items, the export value of domestic water heates was of the order of Rs. 331,977 while domestic refrigerators and parts had a turnover of Rs. 219,102. Electric coffee mill and food grinders, electro-mechanical domestic appliances, stoves, ovens, smoothing iron and hair dressing appliances, electrical heating resistors etc. were also exported during the period.

OVERSEAS SALES OF FOOTWEAR

Improving the performance by Rs. 16.55 million the export sales of footwear in the first six months of 1971-72 amounted to Rs. 58.51 million as against Rs. 41.96 million in the corresponding period of 1970-71.

Leather shoes, the major item of export in the group earned as much as Rs. 21.30 million in April-September, 1971. U.S.S.R. alone accounted for an intake of Rs. 17.32 million. Besides, Indian shoes were exported to 50 other countries, the important ones being Australia, Canada, Nepal, Nigeria, Sudan, U.K., U.S.A. and Zambia. All leather open toe footwear fetched Rs. 12.65 million. U.S.A. absorbed as much as Rs. 5.52 million worth while the intake by Australia stood at Rs. 3.15 million. Bahrein, Bulgaria, Canada, Fiji, Kuwait, Netherlands, U.K., U.S.S.R. and Zambia were the other major destinations for this item. Other types of leather soled footwear earned Rs. 2.01 million with U.S.S.R. leading the list of importers followed by Australia, U.S.A., Somalia and Sudan in that order.

The export sales of canvas footwear in the period were to the tune of Rs. 15.92 million. This type of footwear proved popular in U.K. (Rs. 5.01 million), Canada (Rs.1.77 million), Netherlands (Rs.1.73 million), Federal Republic of Germany (Rs. 1.70 million), Zambia (Rs. 1.18 million) and Nepal (Rs. 1.13 million).

Rubber soled leather footwear brought in Rs. 5.76 million during the six months period. Imports by Australia was around Rs. 1.33 million. U.S.A. and U.K. accounted for Rs. 1.09 million and nearly Rs. 1.0 million worth respectively.

Rubber footwear, footwear with embroidered uppers, rubber or plastic soled footwear, wood and cork soled footwear etc. were also active in the export trade during the first half of 1971-72.

ECONOMIC GROWTH AND INDUSTRIAL DIVERSIFICATION

INCREASE IN AGRICULTURAL PRODUCTION

There was an all-round increase in the production of both foodgrains and commercial crops in 1971-72. The production of wheat in that year is estimated to be about 26 million tonnes as compared to the previous year's level of 23.2 million tonnes and the Fourth Plan target of 24 million tonnes. Among the commercial crops production of cotton is expected to be about 1 million bales higher than last year while that of jute might be higher by about 0.80 million bales. The production of rapeseed and mustard is expected to reach a new record level while that of the groundnut and sugarcane might be somewhat lower.

High Yielding Varieties

The target for covering 18 million hectares under high yielding varieties of cereals in 1971-72 is expected to be achieved in full.

In the case of wheat, rice and Bajra the high yielding varieties have shown impressive results. For hybrid jowar and hybrid maize, research efforts are being intensified to evolve better varieties.

Research work has been intensified through All-India Coordinated Research Project on Pulses. Some high yielding and short duration varieties of arhar, urad, moong and lentils have been evolved and are being tested before their release. Three of these varieties have been released also. Centrally sponsored scheme for seed multiplication and demonstration of these newly released varieties has been formulated for implementation from 1972-73.

Multiple Cropping

Under the Pilot Projects for multiple cropping, during the year special emphasis was given to adaptive research trials, water use and management, scientific demonstrations, provision of inputs and marketing facilities

Commercial Crops

Under the Emergency Production Programme undertaken since December, 1971, plant protection measures were organised on a campaign basis to cover an area of 130,000 hectares under rapeseed and mustard crop. The production of this crop in 1971-72 is expected to be substantially higher than the previous year. In the case of groundnut, package programmes have been implemented, both under the State Plans and under the Centrally sponsored scheme. Important initiatives have been taken for the cultivation of non-traditional oil-seeds, like soyabean and sunflower seed. Soyabean cultivation has been taken up in Maharashtra, Gujarat, Madhya Pradesh and Uttar Pradesh.

A number of new programmes have been initiated during the year 1971-72 for the development of cotton. An Intensive Cotton District Programme has been taken up in 13 districts including 6 predominantly irrigated districts and 7 districts in the rain-fed cotton tracts. A new variety hybird-4, has been found capable of yielding additional 1.5 to 2.0 bales per hectare. Another variety MCU-5 has also proved to be promising for cotton producing areas in the south. The coverage under both these varieties is being substantially stepped up. Development of cotton in the newly irrigated areas in the command of Rajasthan Canal, Tungabhadra and Nagarjunasagar Projects is also being undertaken. All these measures are expected to lead to substantial rise in indigenous production and curtailment of imports of cotton in the next two or three years.

In the case of jute also, an Intensive Jute District Programme has been approved by Government for increasing the productivity and production of the crop in 6 selected districts in West Bengal, Bihar, Assam, Orissa and Andhra Pradesh.

In the sphere of horticulture, two Centrally sponsored schemes, one for the development of bananas for exports and another for walnut cultivation, were taken up for implementation during 1971-72.

Minor Irrigation

About Rs. 1052.4 million of public sector outlay are expected to be incurred on development of minor irrigation during 1971-72. Apart from this, institutional investment on minor irrigation works is expected to be about Rs. 1300 million.

Two projects, one each in Haryana and Tamil Nadu, with a minor irrigation component of Rs. 27 million and Rs. 170 million respectively were approved during 1971-72. These were in addition to the two projects, one for Gujarat with a minor irrigation component of Rs. 200 million and the other for Andhra Pradesh with a component of Rs. 100.5 million, which were approved earlier and were in operation during the year. Negotiations have been completed for credit projects for Mysore and Maharashtra and they involve substantial components for the development of minor irrigarion. About 1.58 million hectares of additional area are expected to be benefited through minor irrigation during 1971-72. The programmes of ground-water development are particularly making a significant progress. During 1971-72 about 300,000 pump-sets, 100,000 private tubewells and 1000 State tubewells are estimated to have been installed. In addition, 170,000 surface wells are also expected to be constructed. The Central Groundwater Board is implementing projects for assessment of groundwater resources in hard rock areas, around Hyderabad, in the arid and semi-arid areas of Rajasthan, Gujarat and Haryana and in the alluvial areas of Narmada river basin in Gujarat and Madhya Pradesh.

Soil Conservation

An outlay of Rs. 318 million was provided during the year for soil conservation, to benefit an area of 1.37 million hectares. 600,000 hectares of non-agricultural land under afforestation and grass land development were also proposed to be covered. Under the Centrally sponsored scheme for soil conservation in the catchments of major river valley projects, 108,000 hectares were expected to be benefited at a cost of Rs. 48 million.

Fertiliser Use

The consumption of fertilisers has risen in 1971-72 by about 20 per cent to the level of 2.60 million tonnes of nutrients as compared to 2.17 million tonnes in the previous year. The consumption of N at 1.75 million tonnes has marked a rise of 18 per cent. P_2O_5 at 547,000 tonnes is higher by 18 per cent and K_2O at 2,95,000 tonnes by 29 per cent.

Seeds

The Government of India has coordinated arrangements for supply of quality seeds of wheat, gram and barley for use in Bihar, U.P. and West Bengal. An ad-hoc Central Seeds Certification Board has been set up and it has drawn preliminary models for setting up State Seed Certification Agencies. National Seeds Corporation, a public sector organisation, continued its promotional and supply functions. During 1971-72, its sales increased to Rs. 46 million. It has taken up seed multiplication for pulses to provide support to programmes for development of pulses. Tarai Development Corporation also expanded its production and sales of seeds.

Plant Protection

A gross area of 58 million hectares is expected to be benefited by plant protection measures during 1971-72. The aerial spraying operations covered 1 million hectares as against 0.68 million hectares in the previous year.

Machinery

In the light of requirements for 1969-70, a decision had been taken for the import of 35,000 tractors. Against this, 25,390 tractors have been imported/shipped upto the end of October, 1971. 113 Agricultural Machinery Hiring Centres have been already set up and measures are being taken to establish more such Centres. Some of the Corporations are undertaking diverse activities connected with development of irrigation, fertiliser use, land development, fruit processing, etc. In order to provide self-employment opportunities to the agricultural engineers and graduates, a scheme for Agro Service Centres is also being implemented and 95 such Centres have been set up.

Agricultural Research

A number of new varieties of crops have been evolved under the coordinated research projects for rice, wheat, other cereals, pulses, cotton, oilseeds and jute. Research work in the spheres of soil science, agronomy, agricultural engineering, water management and dry farming has also been intensified. In the sphere of animal sciences, new projects for research in animal products technology and animal diseases were undertaken, in addition to the earlier ones on breeding, nutrition, animal health, etc. Research efforts for evolving better breeds of cattle, sheep and other animals through cross breeding were continued.

Agricultural Marketing

The compulsory grading and pre-shipment inspection, prior to export, now covers 38 commodities. The value of commodities graded before export during April to December, 1971 was Rs. 580 million.

Export Trade

Exports of agricultural commodities during the period April-June, 1971 totalled Rs. 1030 million and were about 16 per cent higher than the exports during the corresponding period of the previous year.

Animal Husbandry

Six new Intensive Cattle Development Projects were sanctioned during the year, in addition to the 46 projects already functioning. Eighteen new Key Village Blocks have also been set up. Two new Central Cattle Breeding Farms, one at Alamadi (Tamil Nadu) for Murrah buffaloes and another at Koraput (Orissa) for Jersey cattle have been sanctioned.

In the context of feed and fodder development, in addition to three Regional Stations on forage demonstration, four more Regional Stations (in Andhra Pradesh, Rajasthan and Jammu and Kashmir) have been sanctioned. For sheep development, sites for the establishment of three additional farms in U.P., Rajasthan and Bihar have been finalised. 2,570 Rambouillet sheep from USA and 3,019 Merino sheep from USSR were imported during the year to strengthen the programme of sheep improvement.

Dairying

The average daily throughput of milk of all the dairy plants increased to the level of 2.40 million litres per day in 1971-72 as against 2.25 million litres per day in the preceeding year. Seventeen new dairy plants were set up during the year, bringing the total number of dairy units to 123.

Fisheries

The production of fish at 1.88 million tonnes marked an increase over the previous year's level of 1.76 million tonnes. The increase was shared by both marine fish and inland fish. The foreign exchange earnings from the exports of marine products in 1971-72 amounted to about Rs. 400 million. 1,019 mechanised boats were added during the year, bringing the total to 10,762 boats.

AIR CONDITIONING AND REFRIGERATION INDUSTRY

The air conditioning and refrigeration industry in the country is having a rapid growth. New types and ranges of equipment are added to the production line on a continuous basis. For instance a notable progress has been made in the manufacture of centrifugal packaged chillers for the first time in the country. The capacity of a single machine is about 515 tonnes of air conditioning. This will cater to the air conditioning needs of large industrial units, multi-storeyed buildings and hotels. Besides the firm already in the field, two more units have been given letters of intent to take up the manufacture of such chillers. With these two additional units coming into production stream, the country will not only be self-sufficient in its requirement, but will also be in a position to put the item in the export field.

With 6 units in production, the actual output of domestic refrigerators increased to 87,000 units in 1971 from 67,000 numbers in 1970. The installed capacity too went up to 1.08 million numbers from 38,000 numbers in these two years. The total licensed capacity till the end of 1971 was of the order of 1.18 million numbers. In view of the growing demand for domestic refrigerators, a few letters of intent have also been issued for setting up additional capacity.

Nearly 22,000 units of room air conditioners were turned out in 1971 by the 7 firms engaged in the line. The output in 1970 was of the order of 17,000 units. The installed capacity has also gone up to 32,300 numbers from 28,300 numbers.

The indigenous content in domestic refrigerators and air conditioners have increased to a great extent only such items as copper tubes, bundy welded tubes, aluminium tubes etc., are yet to be imported.

The country is self sufficient in refrigeration equipment for cold storages, ice plants, fish storages, etc. Central air conditioning plants, are now being manufactured with fully developed indigenous components. Even in the manufacture of specialised fans and blowers and industrial cooling towers, the country is becoming self sufficient. The manufacturing units have successfully adopted the fast changing air control technology.

Registering a marked improvement the output of industrial air conditioning, refrigeration and air control equipment touched a figure of Rs. 112 million in 1971 as compared to Rs. 78.6 million in the previous year. With the increase in the number of manufacturing units from 19 in 1970 to 22 in 1971, the installed capacity increased to Rs. 160 million from Rs. 140 million. In the case of industrial cooling towers the actual production rose to Rs. 17.7 million in 1971 from Rs. 14.6 million in 1970. The installed capacity for this item is of the order of Rs. 15 million. The import content in the sectors has also been decreasing gradually and currently is of the order of 3 to 5 per cent.

The 4 units engaged in the production of air conditioning and refrigeration controls had an outturn of Rs. 8.3 million worth in 1971 as against Rs. 4.8 million worth in 1970. Their total installed capacity is Rs. 10 million worth.

The production of sealed compressors is on the increase. The actual production went up to 32,000 numbers in 1971 from 27,000 numbers in 1970. The installed capacity in this sector is of the order of about 66,000 numbers per annum. The indigenous manufacturers are adding more and more ranges of compressors to their production stream. Manufacture of compressors for such end uses as in freezers, room air conditioners of 2 tonne and 2.5 tonne capacities, water coolers, commercial refrigeraters is also being taken up in the country and are expected to be made available in a short time. Besides the three main units in this sector, some manufacturers of refrigerators, air conditioners and freezers also produce compressors for their own captive use.

Majority of the components such as crank shafts, connecting rods, pistons etc. for many types of compressors have been developed in the country. Efforts are being made to develop within the country other components required by the industry. The import contents in compressors has been reduced from 35 per cent to about 12 per cent.

The output of room air collers by the two units registered with the Directorate General of Technical Development rose to obout 21,000 numbers in 1971 from 19,000 numbers in 1970.

Besides meeting a large part of the internal demand the air conditioning and refrigeration industry is active in the export trade also. During 1970-71 nearly Rs. 6.13 million worth of these items were supplied overseas. The main item of export was air conditioning and refrigeration plants which fetched Rs. 4.46 million in the year. Air conditioners and parts, refrigerators and parts, ice making machinery and water coolers and parts also figure in the export list.

STORAGE BATTERIES AND DRY BATTERY CELLS

Various types of storage batteries—from motor cycle batteries and automotive batteries to heavy duties batteries are now being manufactured in the country. The production is steadily increasing and was of the order of 1.15 million numbers in 1971 as against 0.75 million numbers in 1965. The present installed capacity of the 7 units in the line is around 1.3 million numbers. The industry is meeting almost the full requirement of defence, railways etc. In view of the growing demand a few letters of intent have been issued recently for setting up of new units as well as expansion of the existing ones. In addition a licence has heen issued for the manufacture of batteries for submarines and production is expected to start by the end of this year. Besides the units in the organised sector, there are a good number of small scale units engaged in the production of storage batteries.

Among the materials required by the industry and now imported production of PVC corvic resin and glass wool mat has already been commenced in the country and are likely to be made available in the near future.

The dry battery cell industry is also witnessing a production uptrend in recent years. From 300 million numbers in 1965 the output has gone up to 492 million numbers in 1970 and 570 million numbers in 1971. The installed capacity too rose to 539 million in 1971 from 479 million numbers in 1970 and one more unit was added to the production line, thus, raising the number of units to 7.

As a result of the review carried out in the year 1967, a large number of letters of intent were issued to new units as also for expansion of the capacity of the existing firms in order to bridge the gap between installed capacity/production and demand. In addition to the installed capacity of 479 million numbers in 1970, licenses were issued for an additional capacity of 426 million numbers thus increasing the total licensed capacity to 905 million numbers. Some other schemes for additional capacity of 470 million numbers are under various stages of implementation. After implementation of all the schemes the internal demand would be fully met by the industry.

The major items of import for the industry are zinc, electrolytic manganese dioxide, manganese ore, acetylene black, carbons rods and acelate lables. Of these, production of electrolytic manganase dioxide is being taken up in the country. With an installed capacity of 2500 tonnes, the commercial production of this item is expected to start in the middle of this year. As this capacity will not be sufficient to meet the entire requirement of the dry battery industry, additional capacity for electrolytic manganse dioxide is also being extablished. In the case of carbon rods, as the indigenous production is limited, letters of intent have been issued for creation of additional production capacity. Small capacities for acetylene black and acetate lables have also been established in the country.

The production of flashlight cases improved to 13 million numbers in 1971 from 11.6 million numbers in 1970. The installed capacity for this item is of the order of 0.83 million numbers.

During the first six months of 1971-72 (April-September, 1971) the export earning from dry cell batteries and accumulators stood at Rs. 14.09 million. Of this flash light and other dry battery cells accounted for Rs. 6.10 million. Sudan absorbed as much as Rs. 3.43 million worth while Nepal's intake amounted to Rs. 757,470. The other major destinations were Malaysia (Rs. 408,960), Thailand (Rs. 309,960), Federal Republic of Germany (Rs. 215,175), Yugoslavia (Rs. 168,740), Yemen Republic (Rs. 133,584) and Ceylon (Rs. 129,761).

Wet Cell primary batteries fetched Rs. 1.32 million with U.S.S.R. importing Rs. 405,000 worth. The offtake by German Democratic Republic was Rs. 396,822 worth, and Iraq Rs. 231,868 worth export of parts of primary batteries during the period amounted to Rs. 803,743.

Lead acid type accumulators and other types of accumulators and parts were exported to the tune of Rs. 5.83 million. U.S.S.R. the major buyer imported Rs. 3.80 million worth of accumulators. The other important destinations were U. K., German Democratic Republic, Burma, Qatar and Iraq.

During the year 1970-71 the export turnover of dry batteries and accumulators was of the order of Rs. 22.23 million. This was an increase of Rs. 6.13 million when compared to the export supplies of 1969–70 at Rs. 16.10 million.

HEAVY ELECTRICALS OUTPUT GOES UP

With an output worth Rs. 327.6 million in 1971-72 the Heavy Electricals Ltd., Bhopal registered a production increase of nearly Rs. 52 million over the previous year's figure of Rs. 275.7 million. During the year the factory exceeded the targets of production in such electrical equipment as switch gears, control gears, capacitors, rectifiers and electric traction equipment etc. Besides, some feeder units have also exceeded the production targets.

In 1971-72 the undertaking manufactured for the first time in India, four insulated DC industrial motors, tank type capacitors of 135 kva ratings, coreless reactor with special magnetic shield of 67,500 kva, 25 kv, 4000 amps and 80 ka booster transformers. A 12,000 kw steam turbine, the largest ever manufactured in the country has also been turned out by the Bhopal unit during the year.

The major achievements of the factory include the equipping and commissioning of three hydro-power stations, two thermal power stations, over 230 diesel electric locomotives and supply of main steam turbines for propelling ships of the Indian Navy.

From its inception a decade ago, the Heavy Electricals Ltd. have supplied sophisticated heavy electrical equipment worth over Rs. 1580 million.

PRODUCTION TREND IN FERTILISERS

There was a good improvement in production of fertilisers in 1970-71 in some units of Fertilizer Corporation of India particularly those at Trombay and Namrup. Excluding Nangal, where the production was limited, the aggregate production in the other four units of the Corporation at Trombay, Namrup, Sindri and Gorakhpur, showed an increase of 4,000 tonnes of Nitrogen. The production during the second two quarters of 1970-71 was 39 per cent higher than in the first half.

The total production of Nitrogen in various plants of the Corporation was 292,000 tonnes as against 314,000 tonnes in 1969-70. The P_2O_5 (Phosphates) production during the year 1970-71 increased by 7,000 tonnes to a total of 24,000 tonnes. The production of K_2O (Potash) was 11,000 tonnes as against 12,000 tonnes in 1969-70.

The sales during the year totalled Rs. 780 million as against Rs. 660 million in 1969-70, showing an increase of 18 per cent.

The Corporation has, at present, five operating units, and seven projects are under construction. The operating units are Sindri (Bihar), Nangal (Punjab), Trombay (Maharashtra), Gorakhpur (U.P.), and Namrup (Assam). The projects under construction are Durgapur (West Bengal), Barauni (Bihar), Namrup Expansion (Assam), Ramagundam (Andhra Pradesh), Talcher (Orissa), Sindri Rationalisation Scheme (Bihar) and Trombay Expansion (Maharashtra). In addition to these, F.C.I. will be setting up two more units one at Haldia in West Bengal and the other at Korba in Madhya Pradesh. The expansion of the Gorakhpur unit has also been taken up by the corporation.

PROGRESS IN OIL REFINING

The three operating refineries of the Indian Oil Corporation processed almost 6.34 million tonnes of crude oil during 1970-71 compared to 6.25 million tonnes processed during 1969-70. The total turnover during 1970-71 of the Corporation amounted to Rs. 7200 million as against 6348.5 million during the previous year.

The Barauni Refinery improved its production by processing 2.19 million tonnes of crude oil in 1970-71 as against 2.09 million tonnes processed during the previous year.

The Gujarat Refinery also registered an increase in production. During the year the refinery processed 3.46 million tonnes of crude oil, which was 65,062 tonnes more than the total crude oil processed during 1969-70. The Refinery operated much above the designed capacity of 3 million tonnes consuming the entire crude oil available from the Western Region.

The Gauhati Refinery processed 685,750 tonnes of crude oil in 1970-71 as against 764,795 tonnes processed in 1969-70. The refinery started LPG (Liquefied Petroleum Gas) production for the first time in March 1971.

The Corporation is at present implementing the Haldia Refinery Project, which is expected to be ready for commissioning in 1973. The project is estimated to cost Rs. 675 million.

The Corporation exported in the year 273,300 tonnes of petroleum products valued at Rs. 35.3 million. It imported 943,199 tonnes of bulk refined products and 91,951 tonnes of base stocks, additives and lubricating oils.

The Corporation is setting up a research and development centre at Fridabad for undertaking product development work, especially lubricants and will render technical services to the costomers.

BOKARO'S FIRST BOILER INAUGURATED

The first boiler of the thermal power station of Bokaro Steel Plant was fixed recently. The firing of the first boiler marks yet another step forward towards the commissioning of the first blast furnace of the steel plant this year.

The boiler has a capacity of producing 220 tonnes of steam per hour. Steam will be required for generating power and used for running the turbo blowers and turbo compressors for pumping fresh air to the blast furnace and compressed air to the oxygen plant for L.D. converters. The second boiler is also nearing completion. This will be followed soon by commissioning of the first of the two 55 MW turbine of the plant's thermal power stations.

The thermal power plant complex of Bokaro steel, with the 180 metres high chimney will have two condensing type turbines of 55 MW capacity each and back pressure turbine of 12 MW capacity. This involves 112,000 cubic metres of concreting, 15 kms of underground communications, 8,500 tonnes of structural steel work and 16,200 tonnes of mechnical and electrical equipment. The civil and structural steel work has been done by M/s. Hindustan Steel Works Construction Ltd. and the major and intricate erection work of equipment has been done by Bokaro Steel Ltd. itself. The entire instrumentation system for this plant has been supplied and erected by the public sector instrumentation plant at Kota in Rajasthan.

This thermal power plant will generate 97 MW of power in stage I and the remainder 140 MW will be supplied from the D.V.C. system. In the second stage expansion of Bokaro, the power plant will be expanded to generate 120 MW and the remainder 203 MW will be obtained from D.V.C. The electrical load of the Bokaro Plant is designed in such a way that the steady demand of power will be met from the plant's own power station and the heavy fluctuations will be met from D.V.C. source. The arrangement for the supply of power from D.V.C. system was completed in June 1971.

NEW TRAINING SHIP COMMISSIONED

The new Rs. 21.4 million training ship 'Rajendra' has been commissioned recently. This ship will replace the 45-year old merchant navy training ship 'Dufferin' located in the off-shore waters near Bombay. The new ship has been constructed by the Hindustan Shipyard, Visakhapatnam.

T.S. 'Rajendra' will train 250 cadets at a time against 169 in the 'Dufferin'. It is equipped with uptodate fittings and mechanical devices which ensure proper training to the cadets in conformity with the latest scientific advancement. It also has electric windlass and motor life-boats besides cutters and whalers and a few buoyant apparatus, all electrically operated. The wheel-house and chart room are equipped on modern standards of a merchant navy ship.

With the acquisition of the new ship it will be possible to train more personnel from neighbouring countries.

INTERNATIONAL ECONOMIC CO-OPERATION

INDIA'S CALL AT UNCTAD III

Addressing the Plenary Session of the Third UNCTAD Conference in Santiago, India's Foreign Trade Minister Mr. L. N. Mishra called for a speedy reshaping of the world economic order through time-bound commitments by the developed countries to implement measures already adopted by UNCTAD. He emphasised that "recent traumatic experience in international monetary, commercial and development assistance fields should not be allowed to cast any doubt on the essential validity and the ultimate triumph of the spirit of international economic cooperation. The developing countries have too great a stake in evolving a new world economic order to afford to give in to the present mood of uncertainity and despondency". The new system should specifically ensure that the problem of development was not decided upon by some major economic powers.

He pointed out that UNCTAD III presented unique opportunity to correct imbalances in the present economic system since it is undergoing radical transformations. The third Conference taking place after the adoption of the strategy for the Second United Nations Development Decade, provides an opportunity to give concrete substance and action oriented content to many of the important provisions of the strategy. The time has now come for accommodating developing countries in world economic system as an integral part rather than as exceptions and for evolving a world commercial pattern on systematic and progressive basis.

Analysing the problems confronting the Conference, the Minister spoke of the urgent need to take measures which would lead to expansion of the trade of developing countries.

In the field of trade, he said that "the Conference must solemnly re-affirm its support to the principle of stand still and of a preferential reduction of tariff and non tariff barriers in favour of developing countries". He noted the recent agreement between U.S.A., E.E.C. and Japan to conduct a new round of multi-lateral negotiations in 1973 under the auspices of the GATT to further reduce tariff and non tariff barriers and stated that UNCTAD must be fully associated with it.

He observed that in the sphere of commodities which are a vital source of foreign exchange of developing countries, the progress towards stabilisation and expansion of export earnings from primary products must constitute an integral part of any viable development strategy. In addition to the agreements already reached on a number of principles relating to the field of commodities, the Conference must agree on a time-bound programme for dealing with the problems of individual commodities. Further a review of the existing arrangements should also be undertaken to see if new concepts and principles have been applied to them, particularly the concept of market sharing. A wider agreement on market sharing is necessasy in order to remedy the situation created by the enlargement of the European Economic Community.

Dealing with the creation of a special fund for financing research designed to diversify the end-use of natural products facing competition from synthetics and substitutes, the Minister stated that "the scale on which this problem is being sought to be resolved is far from commensurate with its magnitude". To achieve a break through in this field, he reiterated the earlier suggestion for the creation of the special fund with adequate resources.

Yet another major endeavour of the Conference should be the adoption of measures for the commencement of early negotiations for the removal of quantitative restrictions and other non tariff barriers to the exports of developing countries. "If the problem of non tariff bariers is not tackled on an urgent basis and in an effective manner in this Conference, we are afraid that the operation of the general scheme of preferences will be seriously undermined" stated the Minister of Foreign Trade.

To realise the full potentialities of trade liberalisation measures, the developed countries must bring about necessary structural adjustments in the economies. He added that "this Conference must agree on measure for anticipatory adjustment assistance to facilitate increasing exports from developing countries and set up a proper institutional machinery within UNCTAD to provide a frame work of accountability regarding progress in this crucial field."

In the field of financing, the Foreign Trade Minister emphasised that international action for speedy untying of aid must constitute an important theme of the Conference. Urgent action is called for to further soften the terms and conditions of development assistance. The problems of external indebtedness of developing countries must be tackled on a priority basis through a systematic approach for the rescheduling of debts. The Minister also laid stress on the importance of reaching agreement on the establishment of a 'link' between the special drawing rights and the provision of additional development finance.

Warning about the threat posed to the economic independence of the developing countries by multinational corporations which are now controlling the great bulk of the world output, he called for a determined assertion of national sovereignty and multinational cooperation among developing countries in order to effectively meet this threat.

In the field of shipping, Mr. Mishra called for a reversal of the declining trend in the share of developing countries in world shipping. Through appropriate policies they must be helped to acquire a reasonable share in world shipping by the end of the decade.

He extended the full support of India for the programme of special measures for the least developed among the developing countries and to the efforts of the Conference to reach agreement on it.

On the major changes in the institutional arrangements of UNCTAD, the leader of the Indian Delegation suggested that "the institutional machinery of UNCTAD should now be geared more and more to providing opportunities and facilities for negotiations and consultations in order to ensure the implementation within the prescribed time limits, of measures already agreed upon. It would also be necessary, as has already happend in a few cases such as the general scheme of preferences, that every measure to be adopted by UNCTAD, should have a built-in procedure of accountability as regards its implementation."

INDIA AND CHILE SIGN TRADE AGREEMENT

An Indo-Chilean Trade Agreement was signed in Santiago recently providing for facilitating exchange of goods between India and Chile and increased possibilities of industrial co-operation including the development of commercial infrastructure, like shipping. The Agreement also mentions about international commercial policy with reference to economic co-operation among developing countries for efficient utilisation of the resources and acceleration of economic development.

The Agreement provides for the export from India of engeineering goods, railway equipment, pharmaceuticals and chemicals, textile and traditional products such as jute goods, tea, shellac and mica.

Imports from Chile envisaged in the Agreement are copper and other metals and minerals, wood pulp, newsprint and fertilizers.

India's exports to Chile are increasing year after year. Form Rs. 1.60 million in 1969-70 exports went upto Rs. 2.10 million in 1970-71. Showing considerable improvement exports in the first six months of 1971-72 amounted to Rs. 11.12 million as against Rs. 0.54 million worth of exports made during the first half of the previous year.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL PROGRESS

DEVELOPMENT OF APPLIED RESEARCH

Development of a wide range of medical, electronic electrical and electro-mechanical and optical instruments including components, is being currently done by the Central Scientific Instruments Organisation (CSIO), Chandigarh.

The CSIO has already completed the development of the flat glass plate assembly. Each assembly consists of two flat glass plates, of dimension 232 mm x 232 mm x 2 mm, one thin plate of 232 mm x 143 mm x 0.8 mm, three thick frames of 234 mm x 234 mm x 15 mm (outer), 221.2 mm x 221.2 mm x 15 mm (inner), one thin frame of size 145 mm x 134 mm x 10 mm (outer), 105 mm x 221.2 mm (inner), two supporting plates for thin frame of 234 mm x 44.5 mm x 3 mm and 12 'L' angle prisms of size 15 mm x 15 mm and 14 mm. The plates have been ground from 6.4 mm thick plate glass. The sets of flat glass plate assembly have been fabricated according to specifications and requirements of users.

The bubble chamber seamer is basically a triple projector with three identical film feeding units and associated system. The projector objective is designed for 70 mm x 90 mm film format and is well connected for distortion, yielding a crisp image.

The controls are easily accessible and simple to operate. The condenser units and gate control system can be lifted up to 120 degree from its normal horizontal position, facilitating quick mounting of the film. Fast film transport is available both in forward and reverse directions. It helps in a few seconds to decide if a particular frame contains anything of interest. The screen brightness is sufficient for easy viewing in a semi-dark room. The instruments is also very useful in experimental study of sub-atomic decays and interactions.

In addition to these instruments, the CSIO has also developed a foetus monitor. This instrument detects the condition of foetus heart in pregnancy from 10th week onwards and indicates placental ioedisation, confirms intrauterine deaths, elective pregnancy, and 100 percent detection of twins.

A stable lowcost operational amplifier with moderately high gain and controlled frequency characteristics, is another product developed by the organisation. This amplifier has many applications, including ordinary computing work.

A non contacting electronic tachometer, a complete indigenuous and portable instrument is yet another item developed by CSIO. It is battery operated and is used in conjunction with a non contact type speed probe and ferromagnatic gear combination for the direct measurement of RPM of any rotating shaft or object.

Similarly, a temperature controllIng unit, suitable for the study of polymer reaction has also been put out by the research unit. The maximum temperature range of the units is 160°C.

Forest Cruiser - an instrument, based on variable plot-method of cruising and suited for survey of forest areas in hilly terrain and a polarising microscope for studying crystal and rock specimens are the other instruments developed by the CSIO.

In addition to this, some of the major instruments and components currently under development are ECG machine transistorised cardioscope and oxygen supply failure alarm for hospitals, desk calculators, digital voltmeter (Ramp-type), CRT numerical display, time interval counter and single channel analyser with pulse amplifier in electronics, electro magnetic flow metres, liner machines, potentiometer recorder, line printer, fluidic devices and systems in the electrical and electro mechanical field. In addition, the CSIO is conducting development work on production technology of infra-red instruments.

ELECTRO-CHEMICAL MARKING OF METALS

A new process of electrochemical marking of metals has been developed by the Central Electrochemical Research Institute, Karaikudi.

The method of electrochemical marking of metals is at present employed for transferring letters, designs and numbers on metals. The metal articles are marked for the purpose of identification, certificate of quality and for advertisement.

The development of the know-how was carried out along the basis of design of suitable pad with electrodes to hold electrolytes and capable of carrying the required density of current, use of suitable combination of electrolytes and additives to effect the rapid etch and or deposit of the metal, and the design of a suitable stenciling device.

The process has been studied on laboratory scale. The marking of the metal by the new process has been approved by several firms.

The essential items of plant and machinery comprise, transformer for AC markings, rectifier for DC markings, AC or DC metres, electrode holder and one electrical tuning device.

The main raw materials required are sodium chloride, boric acid, sodium hydroxide, potassium dichromate, benzonic acid, polyvinyl alcohol, ferric chloride and tartaric acid.

The total capital outlay for establishing a metal marking unit for 150,000 markings per year has been estimated at Rs. 5700.

INDUSTRIAL GROWTH AND IMPORT SUBSTITUTION

Till recent times the term import substitution used to mean substitution by indigenous production by a country of those articles and goods for which it had to depend on imports. In the industrial field substitution took place mostly in case of finished products that were being formerly imported and the achievements in this field were mainly assessed in terms of money value of foreign exchange saved due to decrease in imports.

But lately, with the progress in industrialisation import substitution has acquired a wider meaning and new significance as the industrialisation efforts are mainly directed towards the achievement of self-sufficiency. In this context, import substitution has come to signify the development of domestic production of industrial goods including capital goods, raw materials, components and spare parts, industrial and technological skills, know-how etc. which were either imported previously or will have to be imported in future or for which there is a growing domestic demand.

In India in the last two decades of planned development, the industrial structure has attained a great deal of sophistication. The manufacture of a significant quantum of the capital goods and other materials required for the continued growth of the economy has already been established. The industrial sector today supply a substantial part of industrial machinery requirements ranging from those required for textile, cement and other industries to those for steel and fertilisers, bulk of the capital equipment for power generation, transmission and distribution, a variety of agricultural machinery and implements, transport items such as locomotives, wagons, trucks, motor cars, ships and aeroplanes and communication aids such as teleprinters, T. V. receivers and other electronic instruments etc. In addition, many of the items have been added to the export trade of the country.

The concept of import substitution has been an important facet of the country's industrial policy which aims at achieving the maximum possible self-sufficiency in the industrial field in the shortest possible time. Industiral activities have been mainly directed towards achieving this goal.

Efforts towards import substitution in the first phase included setting up of various key and ancillary industries, both in the large and small scale sectors and diversification of production and other aids like technical assistance, export guidance etc. The second phase now include substitution of imported raw materials, components and spare parts with indigenously manufactured materials and components of same specifications or comparable specifications and according priority for their rapid development, reducing the consumption of imported raw materials and components per unit of production, changing over of production from intermediates to production from basic raw materials, substituting imported raw materials or components by suitable alternatives with consequential changes in the specifications of end-products and accelerating the phased manufacturing programmes to achieve a greater indigenous content in the shortest possible time.

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The combined efforts of the Government and industry in this direction have resulted in the index of industrial production of the industries coming under the purview of Directorate General of Technical Development (DGTD) going up from around 182 in 1965 and 1966 to 203.37 in 1969, 246.15 in 1970 and 256.23 in the first nine months of 1971 (base 1960—100).

The Directorate has been conducting special studies in the field of import substitution and the achievements in this front. A study of 79 selected industries for the period 1960-67 revealed that while industrial production increased by 2½ times, import content had come down by about 40 per cent and the total estimated saving due to reduction in import content over the seven year period was around Rs. 2100 million. Similar studies conducted for the years 1969 and 1970 in respect of 112 industries revealed that the saving in foreign exchange due to increased production was of the order of Rs. 1410 million per annum and during 1971 it is estimated to have gone up to Rs. 1537 million.

Concrete steps have also been taken by DGTD for increasing the production of such items as chemical fertilisers, agricultural tractors and pumps, bicycles, ball and roller bearings, industrial roller chains, typewriters, axle box bearings, electrodes, switchgears, cork, polyester chips, DMT, caprolactum, nylon tyre cord, zinc oxide, titanium dioxde, synthetic detergent, B-napththol, Di-methyl aniline etc.

To step up the programme of import substitution several measures are being initiated. Besies an accelerated growth in the manufacture of such raw materials and finished products currently imported in large quantities, creation of additional capacity in many industries is also to be taken up. Some of the industries where additional capacity is considered necessary are machinery for the manufacture of synthetic detergents, soda ash and glass bottles, printing machinery, calcined petroleum coke, spherical roller bearings for axle boxes, sophisticated valves required for petrochemicals and other industries.

Many organisations in the country are now actively engaged in programmes of import substitution and attainment of self-reliance. For example the Council of Scientific and Industrial Research (CSIR) is engaged in the development of processes and know-how, feasibility and project studies with indigenous expertise and resources and making available to industry the testing and standardisation facilities to manufacture products of standard quality matching the imported ones.

In an exercise carried out by CSIR sometime back, a listing of some 132 items was done, of which the imports exceeded Rs. 1 million. It was found that in 97 per cent of the cases the capability to produce either existed in India or could easily be developed on the basis of available equipment and personnel in its laboratories or in collaboration with industrial firms. A further exercise carried out by the laboratories, they have indicated as many as 637 items on which either indigenous substitutes are available or are under investigation or can easily be developed. A criticle examination of these is in progress.

The Indian Standards Institution (ISI) promotes new standards for products and components in which a high degree of indigenisation has been attained and guide the consumers in the acceptability of such products and components.

The Invention Promotion Board has also been doing a valuable service in restricting imports by suitably recognising the product development of institutions and individuals.

Self-reliance in industrial endeavour, requires not only the establishment of production capacities but also the development of indigenous technology.

Technology covers a wide spectrum, extending from basic research and applied research to development and design engineering. Efforts are already on in the country to develop suitable technology in various fields. ☐

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EXPORT ORDERS FOR INDIAN BICYCLES

The Indian cycle industry with a well established production base is increasing its export performance year after year. Nearly Rs. 11.5 million worth of bicycles were exported during the first seven months of 1971-72. The export value of bicycle parts and accessories during the period amounted to about Rs. 34.31 million. In the year 1970-71 the industry earned Rs. 24.34 million through overseas supplies of 202,504 bicycles. This was a 54 per cent increase in terms of value and 46 per cent increase in terms of quantity when compared to 138,700 bicycles worth Rs. 15.94 million exported in 1969-70.

Among the importing countries, U.S.A. is now coming up as a promising market for Indian bicycles. Recently that country had placed an order on a leading Indian bicycle manufacturer for the supply of 125,000 sports bicycles at a value of Rs. 20 million. The supplies against this order secured by M/s. Atlas Cycle Industries Ltd., Sonepat is to be started in June this year and is to be completed by the end of 1974. The sports model bicycle has only 4 per cent import content. The order followed the participation by the firm in an international cycle exhibition held at New York recently.

Besides the U.S. market, the firm has successfully entered the East European markets also with an order from Bulgaria for 9,000 light weight sports bicycles worth Rs. 1.25 million. This is expected to pave the way for further exports orders from this region.

In addition to export of bicycles, the Sonepat unit has also entered the field of technological exports. An Iranian manufacturer of motor cycles is to be assisted by the Indian firm in the manufacture of bicycles in that country.

A number of negotiations are already on for the export of the company's products to some other countries. Besides these, the firm had also received repeat orders from U.K. for supply of bicycle parts. During 1971 nearly Rs. 2.7 million worth of bicycles and parts were exported by the firm to more than 35 countries. In the current year it expects to put on the export stream nearly 60,000 bicycles.

In addition to the manufacture of bicycles, the company is also taking up the manufacture of mopeds of 50cc capacity. The plant to be established will have an annual capacity of 50,000 units and the production is expected to commence by the middle of next year.

The Indian cycle industry with 13 large scale units turned out nearly 2.10 million bicycles in 1970. Besides these large units, there are 150 small manufacturing units and assembly plants turning out a wide variety of bicycles. In addition there are about 1000 units of all descriptions manufacturing parts and accessories.

CHEMICALS AND EXPORT TRADE

Organic and inorganic chemical exports from India during the first seven months of 1971-72 at Rs. 45.73 million showed an improvement of nearly Rs. 9.90 million when compared with the performance in the comparable period of 1970-71. Export of organic chemicals increased to Rs. 22.54 million from Rs. 15.60 million while that of inorganic chemicals rose to Rs. 23.19 million from Rs. 20.25 million.

Among the inorganic chemicals, export of hydrochloric acid during April-October 1971 amounted to 4554 tonnes valued at Rs. 2.74 million. Overseas supplies of caustic soda during the period were to the tune of 2409 tonnes valued at Rs. 2.51 million consisting of 1672 tonnes of solid variety at Rs. 1.72 million and 738 tonnes of flake variety at Rs. 0.79 million. Export value of chlorine stood at Rs. 0.41 million.

Dubai and Saudi Arabia were the main customers for hydrochloric acid with purchases amounting to 176.4 tonnes at Rs. 0.99 million and 1625 tonnes at Rs. 0.98 million respectively. Muscat, Qatar and Bahrein were the other major destinations. A.R.E. imported as much as 795 tonnes of solid variety of caustic soda at a value of Rs. 0.84 million while Indonesia accounted for 694 tonnes at Rs. 0.69 million. Zambia was the largest purchaser of the flake variety with an intake of 250 tonnes valued at Rs. 274,429 followed by Saudi Arabia with 222 tonnes at Rs. 243,525 and Indonesia with 200 tonnes at Rs. 193,500.

A leading manufacturer of these inorganic chemicals M/s. Standard Mills Co. Ltd., Ghansali, Thana, Maharashtra exported chemical products worth Rs. 3.62 million during 1971. The company is currently engaged in the expansion of the production capacity for caustic soda, hydrochloric acid and chlorine and expects to complete the programme by the end of the current year. This will result in higher output of these chemicals leading to a larger volume of exports

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in coming years. The carbon tetrachloride and chloroform project of the firm have already been set up in collaboration with the National Chemical Laboratory, Poona and are now in trial production.

In cotton textiles, another line of production, the company raised its exports to Rs. 4.87 million in 1971 from Rs. 2.05 million in 1970. The total sales of textiles by the firm amounted to Rs. 212 million in 1971 as against Rs. 191.4 million in the previous year.

India's total export of mill made cotton piece goods during April-October 1971 was of the order of 202.57 million sq. metres valued at Rs. 339 million.

AUTOMOTIVE BATTERIES TO EAST EUROPE

Manufacturing a variety of storage batteries–from motor cycle batteries and automotive batteries to heavy duty batteries, the Indian industry has been expanding the quantum of exports and diversifying the export directions in recent years.

During April-October 1971 nearly Rs. 7.33 million worth of accumulators and parts were put in the export stream. U.S.S.R.'s intake stood at 33,847 numbers valued at Rs. 5 million. The other East Europen market, German Democratic Republic absorbed 2000 numbers amounting to Rs. 0.35 million. In 1970-71 exports of accumulators were of the order of 74,150 numbers at Rs. 7.72 million while parts earned Rs. 0.23 million.

The growing demand for automotive batteries in East European markets is once again witnessed by the recent orders received by an Indian manufacturer from U.S.S.R. and Poland. The Polish order placed on M/s. Standard Batteries Ltd., 4, Forbes Street, Bombay, is for 12,000 automotive batteries valued at Rs. 2 million. The supplies are to be effected during the current year. That country has also agreed to purchase 62,000 batteries in 1973.

The order from U.S.S.R. for 136,000 batteries is to be executed between 1972 and 1975. Exports of the firm to Soviet Union is, therefore, expected to increase from the present Rs. 1.7 million level to Rs. 10 million level in 1975.

In addition to product exports, the firm is also entering the field of technological exports. A Sudanese firm has sought the help of the Indian company for the setting up of a battery manufacturing unit in that country. Till the time the unit is set up in Sudan, the Bombay firm will supply components like plates, separators, hard rubber containers and other equipment for assembling 50,000 batteries per year. The order valued at Rs. 4.5 million was secured by the firm recently.

With an installed capacity of 1.3 million number per annum the 7 units engaged in the production of storage batteries turned out nearly 1.15 million numbers in 1971 as against 0.75 million numbers in 1970. Production of batteries for submarines is also being established in the country.

MAGNETIC TAPES TO U. S. S. R.

India will be exporting for the first time magnetic tapes to U.S.S.R. An order for the supply of 39,000 long playing tapes has been received by the Projects and Equipment Corporation, New Delhi. The production of magnetic tapes in the country was started only in the year 1971.

EXPORT ORDER FOR TRANSFORMERS EXECUTED

Two 50,000 KVA, 132 KV transformers have been shipped from Cochin to Tanzania. The contract for supply, erection and commissioning of these transformers for Ubungo substation under great Ruaha project in Tanzania was won last year by Indian Consortium for Power Projects.

The transformers manufactured by M/s. Transformers and Electricals Kerala Limited, Cochin were successfully tested in the presence of the customer and their consultants' representatives and have been shipped ahead of contractual schedule.

The order will earn for India foreign exchange of Rs. 2.2 million and is the largest single order for transformers executed so far. The transformers are scheduled to be commissioned in June this year.

SURGICAL INSTRUMENTS FOR EXPORT

Two export orders from Soviet Union have been received by the Surgical Instruments Plant, Madras, a unit of the Indian Drugs and Pharmaceuticals Ltd. A high level team consisting of representatives of Medexport of U.S.S.R. visited the plant recently and concluded agreements for the supply of additional quantities of surgical instruments to that country during 1972. The value of the additional supplies is Rs. 2.13 million. Along with the orders now under execution, the plant will be exporting to U.S.S.R. in the current year, instruments of a total value of Rs. 5.87 million as against Rs. 4.05 million in 1971. Another contract is also likely to be signed soon for the supply of surgical instruments to U.S.S.R. in 1973.

The Indian Drugs and Pharmaceuticals Ltd., entered the world markets only recently and has since made rapid progress in its export drive. Small orders from other countries have already been executed by the plant. Substantial orders from Western countries are also expected to materialise soon.

EXPORT OF AUTOMOBILE TYRES

Recording an increase of nearly Rs. 5.15 million, export of rubber manufactures in the six months period April-September 1971 stood at Rs. 36.47 million as against Rs. 31.32 million exported during the corresponding period of the previous year.

During April-September 1971 tyres and tubes worth Rs. 32.84 million were exported. Tyres had a share of Rs. 29.14 milllon while tubes accounted for Rs. 3.70 million. Cycle tyres with an earning of Rs. 2.11 million were mainly directed to Afghanistan, Guyana, Indonesia, Nigeria, Peru, Sudan, U.S.A. and Yugoslavia. The main destinations for motor car tyres which fetched Rs. 1.55 million were Burma, Iraq, Sudan and Yugoslavia. Yugoslavia with purchases amounting to Rs. 2.88 million out of the total export of Rs. 4.51 million was the major market for off the road vehicle tyres. The other importing countries were U.S.A., Kenya and A.R.E. The overseas supplies of truck and bus tyres brought in about Rs. 19.15 million in the period. Yugoslavia was again the important importer having absorbed tyres worth Rs. 9.95 million. U.S.S.R. accounted for Rs. 2.39 million, Czecholsovakia for Rs. 1.50 million and Burma Rs. 1.48 million.

Tubes for trucks and buses and for cycles were the main export items in the tubes group with earnings of Rs. 1.99 million and Rs. 1.20 million respectively. Yugoslavia's intake of truck and bus tyres was of the order of Rs. 1.30 million.

During 1970-71 the export of tyres and tubes amounted to Rs. 61.58 million. Tyres alone contributed for an earning of Rs. 56.19 million.

A single exporter of tyres, M/s. Ceat Tyres of India Ltd., 198, Jamshedji Tata Road, Bombay improved their export performance by nearly 152 per cent in 1971 as compared to the previous year. The export figures for these two years were Rs. 20.95 million and Rs. 8.32 million.

The firm has completed the expansion of the plant already in existence which reached the full production capacity in the last quarter of 1971. The cycle tyre plant of the firm is expected to start production by the end of this year. Production of off the road tyres is also to be taken up by the company in a short time. Another scheme for manufacture of 400,000 automotive tyres and tubes is also under consideration.

EXPORT PERFORMANCE AND POTENTIAL

MARINE PRODUCTS EXPORTS EXCEED TARGET

The year 1971-72 was another record year for the export of marine products. Export earnings touched an all-time high of Rs. 445.5 million an increase of Rs. 94.7 million over the exports in the previous year and an improvement by Rs. 45.5 million on the export target fixed for the year. The export increase works out to 27 per cent. This improvement was achieved in spite of the slight quantitative decline in exports. The total quantity exported was 35,523 tonnes which was 359 tonnes less than the exports in 1970-71.

Frozen shrimp which continued to be the major export item, recorded even quantitative improvement and contributed to the extent of Rs. 370 million, i.e. 83.28 per cent of total exports. The other major items of export were canned shrimp, dried fish, frozen lobster tails and frozen froglegs.

The substantial improvement in the export earnings registered in the year was mainly due to higher price realisation for frozen shrimp and greater diversion to the Japanese market.

Japan now occupies the foremost place among India's markets for marine products. Also, for the first time, India ranked first among over sixty countries supplying shrimp to the Japanese market. During 1971-72 about 52 per cent of the total exports of marine products and 63 per cent of frozen shrimp exports were to Japan. The other important markets in the order of importance were : U.S.A., Ceylon, Australia, U. K., France, Denmark, Singapore, Belgium, West Germany etc. Some of the other highlights of the performance during the year were : a three-fold increase in frozen shrimp exports to Canada; further improvement in the export of frozen shrimp to West European countries and the introduction for the first time, of Indian froglegs on a commercial scale into the Canadian market.

According to the statistics of the F.A.O. India today is the largest shrimp producing country in the world.

Compulsory pre-shipment inspection by Government agencies now cover almost the entire range of marine products exported from India.

EXPORT BUSINESS IN LEIPZIG FAIR

India's participation in the Leipzig Fair held in March, 1972 has resulted in considerable business turnover. It is estimated that nearly Rs. 60 million worth of business will materialise from the transactions already finalised and those under finalisation. Out of this business worth Rs. 50 million is expected from the German Democratic Republic and the balance of Rs. 10 million from countries like Czechoslovakia, Yugoslavia, Bulgaria, Poland and West Germany.

The commodities for which export transactions have already been finalised or are under finalisation with the importing organisation of the German Democratic Republic are : tea, knitting machines, electric motors, taper plug valves, radiators, crushed bones, handicrafts, coir yarn, twist drills, locks, footwear (chappals), shoe uppers, garment leather, leather garments, tyres and tubes, cotton waste, jute goods, printed silk, wire ropes, textiles, pipe fittings, vacuum flasks and walnut kernel.

Third country negotiations cover such items as knitting machines, linoleum, cotton hosiery, jute goods, transistor radios, batteries, bamboo mats, ball bearings, welding electrodes and handtools.

In addition, a large number of enquiries were received by the Indian pavilion from GDR and neighbouring countries for a variety of non-traditional products such as machine tools, small tools, diesel engines and pumps electric motors, bicycle parts, pipe fittings, castings, coupling nuts, stainless steel wares, cutlery, dry and storage batteries, builder's hardware, automobile parts, vacuum flasks and refills, regulators, paper rolls for calculating machines, porcelain ware, PVC moulding powder, sporting and camping equipment, coir products, leather and products, jute goods, textiles, carpets, cashew-nuts, canned fruits and vegetables, unmanufactured tobacco and cigarettes.

The interest shown by the countries in the region indicate that a large volume of trade could be developed for a variety of non-traditional items especially machine tools, steel structurals, foundry castings, tissue paper, pressure lanterns, dry batteries and flashlights and fruits.

India in this year's Leipzig Spring Fair covered a Collective Pavilion measuring 898 sq. metres and individual displays by 27 Indian business units in the specialised commodity halls. The display in the Collective Pavilion laid special emphasis on India's exportable non-traditional products.

EXPORT PERFORMANCE OF SILK PRODUCTS

Total exports of silk goods during 1971-72 amounted to Rs. 71.53 million as against Rs. 100.59 million worth effected in the previous year. Tasar silk varieties had an upward trend in export by nearly Rs. 1.11 million at Rs. 13.05 million while mulberry silk varieties showed a decline of nearly Rs. 30.16 million at Rs. 58.48 million. In the case of tasar silk the unit price also went up from Rs. 17.76 per sq. metre in 1970-71 to Rs. 18.18 per sq. metre in 1971-72.

The better export performance of tasar silk was mainly due to the increased offtake by West Germany and France. West Germany topping the list of destinations, imported Rs. 6.60 million worth of tasar silk, thus recording an increase of 43 per cent over the 1970-71 intake. France with Rs. 1.70 million worth of imports accounted for a 47 per cent increase. Exports to U.S.A. at Rs. 0.65 million and Switzerland at Rs. 0.46 million registered marginal improvements. The other important destinations were Italy with Rs. 1.04 million worth of imports, Japan with Rs. 0.53 million worth and Sweden with Rs. 0.28 million worth.

In the mulberry silk varieties, scarves had an export earning of nearly Rs. 17 million in 1971-72 through a quantity of 1.69 million sq. metres. Dress material with 1.12 million sq. metres fetched Rs. 20.92 million. Export of sarees amounted to 0.64 million sq. metres at Rs. 10.32 million, while that of readymade garments to 0.28 million sq. metres at Rs. 5.95 million. Ties brought in Rs. 3.53 million through overseas sales. The other items accounted for Rs. 0.76 million.

Among the export destinations for mulberry silk products, West Germany accounted for about Rs. 15 million while U.S.A. had a share of Rs. 5.74 million. The other importing countries were Malaysia (Rs. 5.54 million), France (Rs. 4.46 million), Japan (Rs. 3.8 million), U.K. (Rs. 3.56 million), Kenya (Rs. 2.49 million), Italy (Rs. 1.96 million), Switzerland (Rs. 1.90 million), Sweden (Rs. 1.83 million), Canada (Rs. 0.83 million), Yugoslavia (Rs. 0.81 million), Belgium (Rs. 0.63 million), Hong Kong (Rs. 0.62 million) and Denmark (Rs. 0.59 million).

READYMADE GARMENTS

EXPORT REVIEW

India's export of readymade garments of all varieties of textiles amounted to Rs. 165.40 million in the first half of 1971-72 as against Rs. 143 8 million worth of exports in the corresponding period of the previous year. This was a 15 per cent increase in the export performance.

Among the export varieties cotton trousers fetched Rs. 14.49 million and shirts Rs. 13 million in the first six months of 1971-72. The performance of other varieties were: outer garments Rs. 21.78 million, dresses for girls Rs. 13.36 million, under garments Rs. 7.78 million, blouses Rs. 3.30 million, nightwear Rs. 0.92 million, dressing gowns Rs. 0.98 million, handkerchiefs Rs. 2.90 million, shawls and scarves Rs. 6.64 million, clothing accessories Rs. 3.20 million and ties and bows Rs. 3.85 million. The largest item of export in the group was, however, woollen sweaters, cardigans etc. which brought in Rs. 68.29 million.

For woollen cardigans, sweaters and outer garments, U.S.S.R. was the main market which absorbed nearly Rs. 55.30 million worth. Czechoslovakia had a share of Rs. 6.98 million while Libya's intake stood at Rs. 2.66 million. Cotton trousers were also mainly directed to U.S.S.R. That country purchased about Rs. 11.75 million worth of this item. U.S.A. topped the list of countries importing cotton outer garments for men with purchases amounting to Rs. 2.36 million. U.K. with Rs. 1.21 million and Sweden with Rs. 1.04 million were the other major buyers. Other varieties of textile outer garments proved popular in U.S.S.R. whose offtake was of the order of Rs. 2.73 million. Sweden with imports to the tune of Rs. 1.05 million was the main customer for cotton blouses while cotton dresses for girls were mainly exported to U.S.A. That country took in nearly Rs. 4.90 million worth of these dresses.

Cotton shirts from India were exported to more than 35 countries in the first six months of 1971-72. U.S.S.R. was the major purchaser with Rs. 6.42 million worth followed by Sweden with Rs. 1.63 million worth and U.S.A. with Rs. 1.29 million worth. U.S.S.R. was again the major customer for under garments with purchases amounting to Rs. 4.69 million.

In the export of handkerchiefs, U.K. amounted for nearly Rs. 2.25 million worth while German Federal Republic with an offtake of Rs. 1.82 million was the major destination for shawls and scarves. Nearly 50 per cent of the exports of ties and bows were to Nigeria whose intake was around Rs. 1.90 million.

In addition to these garments, Indian exports included such items as rain coats, cotton coats, cotton play suits, cotton Arab roomals, cotton chadars and odhanis, collars, cuffs and gloves, leather apparel, stockings, headgear, rubber aprons and gloves.

TRADE TALKS BETWEEN INDIA AND A.R.E.

Agreed decisions have been arrived at as a result of the mid-term trade review talks held in Cairo recently. The salient feature of these agreed decisions is that the problem of outstanding export contracts concerning the engineering goods has been settled. Egypt has also agreed to offer immediately 27,000 bales of cotton for shipment before the 31st July 1972. India on her part has agreed to supply additional quantities up to a maximum of ten per cent of the ceilings previously fixed for tea and jute.

ECONOMIC GROWTH AND INDUSTRIAL DIVERSIFICATION

PROGRESS IN FOOD PRODUCTION

Food production in 1971 touched a new peak of 107.8 million tonnes marking an increase of 8.3 million tonnes over previous year's record of 99.5 million tonnes. This increase has generally reflected itself in larger market arrivals which in turn helped the government to procure 8.9 million tonnes of foodgrains as compared to 6.7 million tonnes during 1970. Of this, rice was 3.19 million tonnes. With the expectation or yet another good crop in the current year it is expected that the food situation in the country would be good during 1972 also.

In order to impart stability to the country's food economy, Government had decided to build up a buffer stock of 5 million tonnes of foodgrains during the Fourth Five Year Plan period. This has already been achieved and the total stocks of foodgrains with the Central and State Governments staod at 7.9 million tonnes at the end of 1971 as against 5.3 million tonnes at the end of 1970.

In view of the marked improvement in availability of foodgrains in 1971 and in accordance with a decision taken five years ago, concessional imports of foodgrains under PL 480 have been stopped from January 1972.

The total procurement of coarse cereals during 1970-71 season was 492,000 tonnes as compared to 274,000 tonnes in the previous season. The quantity of coarse cereals delivered to the central pool during the year was 402,000 tonnes as against 49,000 tonnes in 1969-70.

During 1971 total imports of foodgrains into India amounted to 2.05 million tonnes valued at approximately Rs. 1234.6 million as against 3.63 million tonnes in 1970 and 3.87 million tonnes in 1969.

The international wheat agreement 1971, which came into force on July 1, 1971 will remain operative till June 30, 1974.

SOAPS, SYNTHETIC DETERGENTS AND COSMETICS

Significant rise in the production of soaps, synthetic detergents and tooth powder was recorded in 1971 as compared to 1970. In such industries as fatty acids, textile auxiliaries, carboxy methyl cellulose, resin finishes and cosmetic items there were moderate increases in production. There was, however, some shortfall in the output of glycerine and metallic stearates.

The out-turn of 44 organised units engaged in the production of soaps amounted to nearly 271,000 tonnes as against the production of 232,400 tonnes in 1970. The actual output has exceeded the installed capacity of 217,822 tonnes.

The organised soap units used more of non-traditional oils particularly rice bran oil in 1971. It is expected that more and more usage of such non-traditional as well as minor and non-edible oils will be made by the soap manufacturing units in the coming years. During 1971, one scheme for the manufacture of toilet soap in the public sector was approved. Laundry Soap continued to be reserved for development in the small scale sector.

Encouragement for the manufacture of synthetic detergents was continued to be given in 1971 in the shape of allowing liberal import of alkyl benzene, the only imported raw material used in the manufacture of detergents. A growing market for synthetic detergents contributed to the increased production which went upto about 50,000 tonnes in 1971 from around 31,000 tonnes in 1970. As in soaps the actual production of synthetic detergents exceeded the installed capacity of 47,580 tonnes.

One of the synthetic detergent manufacturing units, has expanded their capacity in early January 1972 and seven other schemes approved earlier are now under various stages of implementation. Increasing the production of detergents in cake form is also being taken up.

The cosmetics manufacturing sector maintained a steady progress. As most of the raw materials for this industry are indigenously available the manufacturing units have no difficulty in meeting the growing demand for cosmetics. The production of talcum and face powder increased to 3.60 million kg. in 1971 from 3.51 million kg. in 1970. The installed capacity for these items is of the order of 6.43 million kg. In the case of face cream the output increase was from 753,000 kg. in 1970 to 848,000 kg. in 1971 while the installed capacity stood at 1.13 million kg. Actual production of tooth powder improved to 815,000 kg. in 1971 from 488,000 kg. in 1970 with the installed capacity at 1.06 million kg. The production turnover of tooth paste exceeded the installed capacity of 4.05 million kg. The actual output in 1971 was around 5.03 million kg. as against 4.86 million kg. in 1970.

The fatty acid manufacturers maintained their production with some imported tallow as also indigenous oils, mostly castor and rice bran. With an installed capacity of 37,050 tonnes. the 10 units in the line produced nearly 20,270 tonnes in 1971 and 19,156 tonnes in 1970. The production of carboxy methyl cellulose increased marginally to 4,433 tonnes in 1971 from 4,388 tonnes in 1970. The installed capacity is around 3,900 tonnes. Similarly resin finishes also had a marginal improvement at 8,564 tonnes in 1971 as compared to 1970's output of 8,267 tonnes. The installed capacity has, however, gone up to 9,836 tonnes from 9,236 tonnes.

The production of textile auxiliaries showed progress in quantity as well as in quality. This contributed towards further growth in import substitution. With the co-operation from consuming industries, particularly drugs and synthetic fibre industries, some surface active agents have been developed. It is expected that more and more items hetherto imported would be developed shortly. Three textile auxiliary manufacturers are also undertaking expansion of their capacity. Nearly 22,625 tonnes of textile auxiliaries were produced in 1971 as compared to 18,620 tonnes turned out in 1970. The installed capacity had also increased to 31,749 tonnes from 30,759 tonnes.

Due to the increased usage of rice bran oil and minor seed oils in the manufacture of soaps there was a marginal reduction in the production of glycerine. Output went down to 9,600 tonnes in 1971 from 9,840 tonnes in 1970. Metallic stearates too showed a moderate downward trend at 208 tonnes in 1971 as against 282 tonnes manufactured in 1970.

Soaps, detergents and cosmetics are exported in considerable quantities from India. Tbe export performance of soaps and polishing preparations improved to Rs. 6.40 million in the first half of 1971-72 as against the value of Rs. 3.93 million in the comparable period of 1970-71. Similarly the exports of perfumery and cosmetics rose to Rs. 17.42 million during April-September, 1971 from Rs. 9.15 million in April-September, 1970. During the entire year 1970-71 exports of soape etc. amounted to Rs. 9.49 million while perfumery and cosmetics brought in Rs. 23.72 million.

CONSTRUCTION EQUIPMENT

A REVIEW

A variety of construction equipment such as road rollers, excavators, shovels, draglines, mobile cranes, dumpers, scrapers, motor-graders, crawler tractors, loaders, forklift trucks and diesel locos/shunters are manufactured in the country.

There are currently seven units manufacturing road rollers with a licensed capacity of 2340 numbers and an installed capacity of 1520 numbers. Their actual outturn in 1971 was of the order of 336 numbers. In the past few years the production of road rollers has been low due to the general recession, but now the demand has picked up and the output is also going up. The effect of this rising demand is expected to be fully reflected in the production pattern during the current year. The industry has achieved a high degree of indigenisation which is around 97 per cent at present.

With three units engaged in the production of excavators shovels the actual output stood at 96 numbers in 1971. The installed capacity in the year was of the order of 150 numbers. Besides the private sector units manufacturing 1.17 cubic metre to 2.71 cubic metre capacity the public sector project in Ranchl turns out bigger size shovels of 4.6 cubic metre capacity. One of the manufacturing units has recently introduced a smaller size shovel of 0.58 cubic metre capacity. Both the private sector units have plans to manufacture bigger size shovels up to 3.51 cubic metre capacity. A high degree of indigenous content has also been reached in the manufacture of small size shovels.

With an installed capacity of 188 numbers and an actual output of 67 numbers in 1971 mobile cranes are being manufactured up to 12.5 tonnes capacity. Besides, the unit already in existence, a letter of intent has been issued to a new manufacturer for production of hydraulic truck mounted types of mobile cranes. The existing unit is also taking up the manufacture of hydraulic mobile cranes and truck mounted cranes up to 30 tonnes capacity. In this industry too indigenisation of components have progressed to a good extent.

The production of crawler tractors during 1971 was of the order of 238 numbers as against 207 numbers in the previous year. The installed capacity of this item is around 600 numbers. The public sector unit M/s. Bharat Earth Movers Limited, Bangalore have been licensed for a total capacity of 1050 numbers. Another private sector unit licensed to manufacture crawler tractors have been permitted to take up the production of 227 h.p. and 485 h.p. capacity tractors at the rate of 90 nos. per annum. The third unit has been issued a letter of intent for taking up the manufacture of 50 h.p. and 90 h.p. tractors with a capacity of 400 numbers per annum. This unit is expected to commence production during the current year.

With three units in the production line and an installed capacity of 250 numbers the output of dumpers in 1971 stood at 57 numbers. M/s. Bharat Earth Movers have a capacity of 300 numbers per annum and their production ranges from 25 tonnes to 50 tonnes capacity. Another unit in the private sector has also taken up the manufacture of 25 tonnes capacity dumpers recently. Their annual licensed capacity is 100 numbers.

The production of motorised scrapers in 1971 was 47 numbers as against 33 numbers in 1970. The installed capacity has increased from 50 numbers to 75 numbers. Similarly the capacity for motor graders has also gone up from 50 numbers in 1970 to 60 numbers in 1971. The actual output which stood at 26 numbers in 1971 was an improvement when compared with 21 numbers turned out in 1970. The public sector unit engaged in the manufacture of these items has attained a high degree of indigenous content. A unit in the private sector is also taking up the manufacture of motorised scrapers with a capacity of 100 numbers per annum.

Besides, the public sector unit in Bangalore manufacturing wheeled loaders of 1.5 cubic metre capacity, a second unit in the private sector has been licensed for taking up production of front end loaders with an annual capacity of 50 numbers. The Bangalore unit has also been issued a letter of intent for manufacture of bigger size loaders of 2 to 2.5 cubic metre capacity. The outturn of this item in 1971 was 47 numbers.

With seven units in the production line and an installed capacity of 2000 numbers the actual production of forklift trucks in 1971 improved to 843 numbers from 543 numbers in 1970. Besides, meeting the internal demand efforts were also made by this sector to put this item in the export stream.

In the case of diesel locos and shunters, there are two private sector units and one public sector unit. Two more new units have been registered for the production of battery locos and they are expected to go on stream shortly.

There are three units in the production of heavy duty diesel engines and their output in 1971 was of the order of 887 numbers. The production range of one of the units is of the kind used as main propulsion unit and auxillaries in the ocean going vessels while the other two units turn out engines of the industrial type. In the case of the industrial type engines the indigenous content is in the region of 70 to 80 per cent.

With the growing production trend, the construction equipment industries are also gradually increasing their export earnings. During 1970-71, earth moving equipment fetched nearly Rs. 4.90 million through overseas supplies, while all types of cranes and parts were exported to the tune of Rs. 3.14 million. Road rollers and parts had a share of Rs. 196,400 while dumpers accounted for Rs. 213,426. Export of forklift trucks during the year amounted to Rs. 389,825. Marine diesel engines and parts were exported to many countries and the value of the overseas sales was Rs. 7.18 million.

PRODUCTION TREND IN FOOD INDUSTRIES

The Indian food industries produce a large variety of products including biscuits, confectionery items breakfast foods, malt extracts preserved fruits and vegetables, meat products, protein isolates, dextrose powder, liquid glucose, chocolate, cocoa powder, infant milk powder, weaning foods, instant tea and coffee, ice cream etc.

There are 31 units in the organised sector manufacturing biscuits with an installed capacity of 94,200 tonnes. Their output in 1971 was around 64,000 tonnes as against 62,500 tonnes in 1970. There are 22 units engaged in the manufacture of confectionery. Their actual production was nearly 16,600 tonnes in 1971 as against 15,700 tonnes in 1970. The installed capacity in 1971 stood at 37,152 tonnes. The flour milling industy with more than 140 units and an installed capacity of 4.41 million tonnes produced as much as 2.31 million tonnes in 1971. With the increased production of wheat in the country the flour mills were able to procure larger quantities thereby utilising their installed capacity to a better extent.

Among the breakfast foods corn and wheat flakes had a production outturn of 375 tonnes in 1971. The installed capacity for this item was around 900 tonnes. Processed pearl barley was produced to the extent of 1800 tonnes while the installed capacity was around 5328 tonnes. Processed and rolled oats with a capacity of 2100 tonnes had an output of 350 tonnes in 1971.

The production of malt extracts rose to 3550 tonnes in 1971 from 2650 tonnes in 1970. The installed capacity has however remained at the same level at

4,800 tonnes. The production of guargum by the 5 units in the line stood at 16,216 tonnes in the year with an installed capacity of 26,100 tonnes. The output of preserved fruits and vegetables improved to 24,433 tonnes in 1971 from 23,310 tonnes in 1970. The capacity installed in this sector by the 22 units in production was of the order of 78,107 tonnes. Meat products too improved in output. From 499 tonnes in 1970 this improved to 525 tonnes in 1971. The four large scale units in the sector have a capacity of 1,600 tonnes per annum. With a capacity of 1,500 tonnes the production of protein isolate improved to 219 tonnes in 1971 from 168 tonnes in the previous year. Similarly dextrose powder too had production rise at 11,237 tonnes from 10,820 tonnes. The installed capacity also increased from 24,658 tonnes to 30,600 tonnes. Production of liquid glucose in the year however showed a marginal decline. It was of the order of 20,110 tonnes as against 20,213 tonnes in the previous year.

The four units producing sweetened condensed milk improved their installed capacity as well as the actual production in 1971. The capacity went up to 12,200 tonnes from 10,800 tonnes. The output at 8,350 tonnes in 1971 was an improvement of nearly 3,745 tonnes as compared to the turn out in the previous year. Similarly the manufacture of infant milk powder showed an improvement in capacity and output in 1971. While the capacity rose from 19,233 tonnes to 20,983 tonnes, actual production went up to 16,591 tonnes from 15,677 tonnes. Three more units were added to the production line in 1971. With the addition of one more unit for the manufacture of milk powder the installed capacity for this item went up to 20,318 tonnes in 1971 from 17,610 tonnes in 1970. The actual production in 1971 showed considerable improvement at 11,761 tonnes as compared to the 1970 output of 6,677 tonnes. In the case of malted milk food the number of units increased from 7 to 8 with a rise in installed capacity. It stood at 13,667 tonnes in 1971 as compared to 10,667 tonnes in 1970. Registering a rise of 1,427 tonnes, the actual production stood at 12,030 tonnes in 1971 as compared to 10,603 tonnes in 1970. The nine units engaged in the production of starch with an installed capacity of 168,600 tonnes turned out as much as 93,213 tonnes in 1971 as against 78,802 tonnes in 1970. The production of weaning foods too improved to 1,005 tonnes from 679 tonnes. The installed capacity too picked up and stood at 810 tonnes in 1971 as against 620 tonnes in 1970.

There are at present two units manufacturing instant tea in the country and their output in 1971 was of the order of 259 tonnes. The installed capacity for this item is 512 tonnes. In the case of instant coffee, the two units engaged in its production had an output of 1,586 tonnes in 1971 as against 1,200 tonnes in 1970. The installed capacity of these two units was of the order of 1,664 tonnes. Modified milk for infants is being produced by 2 units in the country who improved their installed capacity to 852 tonnes in 1971 from 546 tonnes in 1970. The production of this item was nearly 770 tonnes in 1971. Production of industrial enzymes in 1971 was of the order of 533 tonnes and the installed capacity stood at 7,300 tonnes.

The commercial production of dehydrated onions was established in the country during 1971. A few schemes have also been licensed for the manufacture of dehydrated vegetables.

In addition to meeting the large home demand, the processed food industry is active in the export trade also. During the first seven months of 1971-72 (April-October 1971) export of wheat flour and meal was of the order of Rs. 3.35 million. Cereal preparations and preparations of flour and starch of fruits and vegetables had an export earning of Rs. 6.13 million. Preserved fruits and fruit preparations fetched as much as Rs. 17.16 million in the period while preserved vegetables had a share of Rs. 10.47 million. Chocolate and other food preparations containing cocoa were exported to the tune of Rs. 2.61 million. The export earnings from coffee extracts and essences were around Rs. 7.91 million while the export of instant tea was around Rs. 0.94 million.

CALCIUM CARBONATE DEPOSITS DISCOVERED

The Geological Survey of India (GSI) has estimated that the lagoons in the islands of Laccadive, Minicoy and Amindive contain over one million tonnes of calcium carbonate with 93 per cent purity.

Feasibility study for starting small scale industries in the island to manufacture chemicals and white cement has been taken up by GSI in collaboration with the Council of Scientific and Industrial Research.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

OXALIC ACID FROM SAW DUST

A process for the manufacture of oxalic acid from saw dust has been developed at the Regional Research Laboratory, Jorhat.

Oxalic acid is an important chemical used in textile industry, metal polishes and other purposes. The requirement of oxalic acid is estimated at about 400 tonnes per annum.

In India some industries are making oxalic acid from sugar which is a costly raw material. With a view to conserving sugar and utilizing inexpensive raw material, investigations were undertaken at the Regional Research Laboratory, Jorhat. The new products has been tested and conforms to the standards and is acceptable to industry.

The total capital outlay for a plant capable of producing 1 tonne of oxalic acid per day is estimated at Rs. 1.4 million.

ELECTRICAL RELAY TESTER DEVELOPED

A new electric relay tester, has been developed by the Central Mining Research Station, Dhanbad. The relay tester is designed for testing and calibration of various types of electrical relays, as over current relays, no valt relays, low volt relays and relays for remote control circuit, volt meters and ammeters used in conjunction with switch gears, starters, get-end boxes, drill panels etc. in mining and other industries.

The new tester is operated on the principle of current and voltage amplification by transformers. It is capable of delivering smoothly variable current output from 0-100 amps and a voltage output from 0.550 volts at 50 cycles per second.

The tester can be fabricated at a low cost from such indigenously available components as regulator, step up transformer and current transformer along with other accessories like main switch, mains fuse indicating lamps, voltmeter and ammeter. The device can ensure quick and efficient testing and calibration of various types of electrical relays, for preventive maintainance and repairing purposes.

CLUTCH FOR MARINE ENGINES

An improved type of power take-off clutch for marine engines has been developed by the Central Institute of Fisheries Technology, Cochin.

Fully enclosed and protected from marine corrossion, oil and dirt, the new clutch has overcome the drawbacks of the types currently in use which have their working parts exposed to corrossion under marine atmosphere and are subject to damages. Clutches suitable for engines of 40 HP to 150 HP have been designed. The new types can be manufactured from indigenous components.

Power take - off clutch is necessary to transmit power from the mains marine engine to drive fishing aids like trawl winches and gurdy.

ACTIVE CARBONS FROM AGRICULTURAL WASTE

A technology to manufacture active carbons from coconut shells, rice husks, bagasse and other agricultural wastes, has been developed by the Regional Research Laboratory at Hyderabad.

The active carbons have many industrial applications and are mainly utilised for decolourisation, as purifying and refining agents for the vegetable and mineral pills, pharmaceuticals and for absorption of gases.

The technology of manufacturing active carbons has a big potential since coconut shells and rice husks are available in large quantities in the country.

COMPOSITION OF INDIA'S IMPORT TRADE

(in million rupees)

Commodity	April - September	
	1970	1971
Dairy products and eggs	**57.21**	**65.20**
a) Milk and cream	45.16	56.23
Cereals and cereal preparations	**974.10**	**561.03**
a) Wheat	804.37	432.29
b) Rice	109.90	97.33
Fruits and vegetables	**234.46**	**174.50**
a) Fresh fruits and nuts	222.84	148.70
Pulp and waste paper	62.54	33.93
Textile fibres and waste	**816.17**	**857.25**
a) Wool and other animal hair	116.11	89.65
b) Cotton	657.58	705.50
Crude fertilisers and crude minerals	180.99	187.57
Petroleum and products	**633.94**	**987.20**
a) Petroleum, crude and partly refined	487.52	741.22
b) Petroleum products	146.42	245.98
Animal oils and fats	106.80	108.68
Fixed vegetable oils and fats	135.47	137.52
Chemical elements and compounds	**349.46**	**385.81**
a) Organic chemicals	269.30	283.64
b) Inorganic chemicals	80.17	102.17
Medicinal and pharmaceutical products	126.12	146.49
Manufactured fertilisers	216.10	336.54
Paper, paper board and manufactures	111.50	136.74
Non-metallic mineral manufactures	**157.73**	**203.12**
a) Pearls, precious and semi-precious stones	119.31	126.96
Iron and Steel	**637.91**	**1131.41**
a) Ingots and other primary forms	13.63	101.71
b) Iron and steel bars, rods, angles, shapes and sections	78.90	171.49
c) Universals, plates and sheets	406.86	619.04
d) Tubes, pipes and fittings	67.16	86.48
Non-ferrous metals	**560.77**	**612.28**
a) Copper	321.12	293.68
b) Nickel	37.25	39.51
c) Aluminium	8.76	76.12
d) Lead	55.23	44.70
e) Zinc	98.55	103.55
Machinery other than electric	**1353.18**	**1410.97**
a) Power generating machinery	106.07	142.74
b) Agricultural machinery and implements	97.09	154.85
c) Metal working machinery	116.32	106.87
d) Machines for special industries	146.35	156.02
Electrical machinery, apparatus and appliances	**346.01**	**460.19**
a) Electrical power machinery and switchgear	154.39	192.62
Transport Equipment	**224.68**	**417.44**
a) Railway vehicles	46.45	135.93
b) Road motor vehicles	129.76	163.05
c) Aircrafts	45.17	115.85
Professional, scientific and controlling instruments, photographic and optical goods, watches and clocks	140.45	125.17
Total including other items	**7996.90**	**9138.31**

Source : Department of Commercial Intelligence and Statistics, Calcutta.

SILK INDUSTRY IN INDIA

Rising from the rural background the sericulture industry has now joined the complex of semi-sophisticated national industries which receive special attention as priority sector of national economy.

In the past decade the production of mulberry raw silk has risen from 1154 tonnes in 1960 to 2258 tonnes in 1970 recording thereby an increase of as much as 100 per cent. The fabric production today is over 40 million square metres including all varieties. Presently India sets apart about 10 million square metres of fabric for export.

The area under mulberry in 1970 was 98,577 hectares and the number of mulberry trees used for rearing was around 3.96 million. The total production of silk in that year was of the order of 2,844 tonnes composed of 2,258 tonnes of mulberry variety and 586 tonnes of non-mulberry varieties. The mulberry reeling sector had in that year 1,471 filature basins, 4,180 cottage basins and 8,877 charkhas. The silk weaving sector had 119,627 handlooms and 3,207 power looms. Production of silk fabrics consisted of 36.10 million sq. metres of mulberry varieties, 4.10 million sq. metres of non-mulberry varieties and 0.72 million sq. metres of spun silk varieties.

Production of mulberry raw silk is largely confined to Mysore, West Bengal and Jammu and Kashmir accounting for 98 per cent of the country's total production. Assam accounts for the entire production of muga silk and the bulk of eri silk. Tasar silk is produced mainly in Bihar, Madhya Pradesh and Orissa. A scheme has also been evolved to develop production of tasar raw silk in the sub-Himalayan belt.

A characteristic feature of Indian silks is the disciplined creation of designs. Each design woven on traditional silk fabric is a master-piece by itself. The popular Indian motifs are paisely, trefoil, birds, animals, natural objects and geometrical patterns like stripes, circles, polka dots, squares and triangles.

Yet another feature that accounts for the success of Indian silk in the world of competitive haute couture is the traditional craftsmanship and the rare hand-weave of fabrics which stand out in bold contrast to the monotony of machine-made fabrics. The masterly hand-weave bestows a touch of exclusiveness. The handspun and handwoven silks and tussores and dupion silks with distinct touch of 'hand-weave' are in constant demand in the non-traditional markets of Europe and America. India produces both yarn dyed and piece-dyed silks, but the bulk is dyed in the traditional methods.

The Kinkhab

Kamkhab or Kinkhab comes mostly from Varanasi, the major centre of silk weaving in India. Enjoying a great traditional reputation, kinkhabs are a sort of brocade embellished with flower designs. The special technique employed for weaving kinkhab demands cute craftsmanship and precision. Diffused with dramatic dazzle and conventionally used as sarees in India, the kinkhab is an ideal material to create exquisite dresses like tunics, gowns and jackets. Kinkhabs are brocaded both on heavy and fine silks with identical effect.

Dupions

Woven from handspun coarse yarn of mulberry silk, the fibre of dupion is ejected by two silkworms together. Hued in heavy colours, woven like the mute waves of a calmpool and catching the iridescence of sunset horizon, the Indian dupions have come out as trend-setters of world fashion. Their fall and weight have been aptly exploited by dress designers abroad. Generally, dupions are liked in solid colours and seldom printed. Subdued-silver and garish-gold are the most popular colours.

Tasar

Indian tasar silk fabrics have an extremely off-beat appearance. Reeled, handspun and handwoven from the jungle cocoons, tasar fabrics are known for their exquisite colour tints, particularly the shades of emerald, beige and sapphire and the golden tones. Its vibrance and weightlessness, its unclassical nubbly texture and photogenic quality and its subtle property to travel without wearing the wrinkles are the features that attract the admiring attention of the connoiseur. Ideal material for dresses apart, the deep texture and the heavy wavy fall of tasar fabrics make fulgent furnistings.

Some varieties of fabrics

Phulkari - creation of flowers by embroidery - is yet another masterpiece of Indian silk industry. A whole piece of silk fabric is recorcheted with silk threads creating designs with geometrical balance. Phulkari silks are now extensively used as dress material.

Himroo is among the finest traditional handloom products of India, confined to the district of Aurangabad in Maharashtra State. One exclusive quality that excels in this damask is its topsyturvy effect, the oneness of design on both sides, without any apparent difference.

The Baluchar silk saris of Murshidabad are known for their varied designs, ranging from the traditional mango patterns to the various contemporary subjects.

Several varieties of silk are manufactured in South India; those from Mysore State and Madras are particularly noteworthy. These silks command an nternational repute for their rich lustrous yarn in alluring shades. The furnishing fabrics and dress materials are the specialities of the region.

Eri, Muga and Pat are the three varieties of silk abrics produced in Assam. Endi (Eri) sheets or shawls re a unique type produced here out of eri yarn a natural silk with a cotton-like finish. Endi silk shirting nd suiting for men's wear are known for their durability. The golden yellow muga silk is another distinctive variety which is used to produce a wide range of fabrics - from the simple shirting to designed nd embroidered saries, mekhalas and rihas.

The Indian sarie is used as a drap with great elegance and sophistication. Available in a wide range f textures, designs and colours, silk saris from Kancheepuram, Bangalore, Chanderi and Banaras Varanasi) are known not only in all parts of India ut in many fashion centres of the world for the acility with which these can be adapted into a flared kirt, a flowing gown, a bodice or a dainty dress.

Today, silk saris are being extensively used by eading fashion houses for conversion into a variety f elegant dresses: jackets, suits and evening dresses. he gold borders are clipped out and improvised to ecorate a bold hem or neckline. Cut-out pieces are daintily applied as appliques for pocket flaps or to pipe the straight linedown the sides of a full length ball-gown. A jacket really attains a sparkling charm when garnished with embroidered mandarin collar.

Apart from these prestigious fabrics Indian handloom weavers produce many more varieties of silk. There are fine aberawans (flowing water) of Varanasi, the bandhanis of Rajasthan, the Patolas of Gujarat, the lungis (sarongs) of Tamil Nadu, the Korahs of West Bengal and the Tabby of Kashmir.

Today, the Indian silk scraf is a big business, sold on a vast scale, from the much sought-after "exclusive" print, hand-blocked and hand rolled to the simple, solid toned square. It can be colour co-ordinated with a dress or blouse or matched to an umbrella or summer handbag. The mango motifs, polka dotted and madhubanis are some of the popular designs.

Silk, blended with man-made fibres, had provided several new varieties of luminous colours plus additional tensile strength.

In India, scarves and stoles are the trade names given to the category of fabrics usually used as upper garments. On the basis of textures, there are two broad divisions of scarves–"gauze texture" and "katan texture". But general classification is done on the basis of weave and quality. "Nakshi", "Piping", "Wild-silk", "Gauze" and "Tissue" are some of the popular varieties of scarves.

Aesthetically attractive fabrics, particularly handloom silk have given new dimensions to the tie manufacturing trade in India. Evidence of the good potential of this manufacture was seen in 1968 when the first series of the novel "Tie set" was introduced. Tie set comprised of a pure silk tie, a kerchief and a pair of cuff links, topped with the same fabrics as the tie. Indian pure silk is block-printed by hand for spontaneous blending of colours and patterns, combinations varying from the daring to the subdued. Only a few pieces of any one particular design or combination are made, there by ensuring a certain exclusiveness to the consumer. Silk handkerchiefs in the exclusive set are hand-rolled. Cuff-links are gilt-edged with embeddings of matching silk-pads. The latest introduction in silks is a rich brocade version of the tie and kerchief set designed and packed for absolute sophistication.

Thoroughly in keeping with the latest trends in motifs and designs, a tie manufacturer offers a wide selection in prints and patterns. Prints range from the traditional paisleys to modern geometrics; from intricate batik and tie-and-dye to jacquards.

Export Trade

Indian silk fabrics are in good demand in international markets. During 1970-71 exports of silk goods amounted to 6.22 million sq. metres at Rs. 100.59 million. Of this mulberry silk varieties accounted for 5.55 million sq. metres valued at Rs. 88.64 million while tasar and other varieties had a share of 0.67 million sq. metres at Rs. 11.95 million.

Among the mulberry varieties, scarvas earned as much as Rs. 44.85 million through an export of 3.43 million sq. metres. Exports of dress materials amounted to 1.15 million sq. metres at Rs. 22.54 million while sarees brought in Rs. 10.93 million by an export quantity of 0.60 million sq. metres. Overseas supplies of silk garments stood at 0.24 million sq. metres at Rs. 6.24 million and that of ties was 0.11 million sq. metres at Rs. 3.49 million. Other varieties of fabrics accounted for Rs. 0.59 million.

As to the direction of exports Federal Republic of Germany was the leading buyer with an intake worth Rs. 26.09 million followed by U.S A. with Rs. 10.37 million worth, Japan with Rs. 6.60 million worth, Malaysia with Rs. 6.58 million worth and U.K. with Rs. 6.09 million worth. The other destinations and the value of their imports of Indian silk products were : France Rs. 5.95 million, Italy Rs. 4.23 million, Sweden Rs. 4.20 million, Netherlands Rs. 3.95 million, Switzerland Rs. 3.58 million, Denmark Rs. 2.86 million, Canada Rs. 2.45 million, Kenya Rs. 2.19 million, Belgium Rs. 1.68 million and Hong Kong Rs. 1.59 million. The other destinations absorbed as much as Rs. 12.19 million worth. □

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ONE MORE POWER TURNKEY ORDER SECURED

In the strong chain of turnkey orders bagged by the Indian power industry from abroad, one more link has been recently added with the winning by the Indian Consortium for Power Projects of an order from Kenya. The Kenyan order is for the supply, erection and commissioning of all the switchgear and ancillaries for three sub-stations in that country. The order is worth over Rs. 6 million. The total value of the export contracts won by the Consortium has in fact exceeded Rs. 11 million. The Kenyan order has been secured in the face of stiff competition put up by internationally reputed firms from France, Japan, Italy and U.K.

Earlier, the Consortium received three turnkey contracts from Malawi and Tanzania. The supply for the Tanzanian order was made recently. Comprising five public sector enterprises, namely, M/s. Bharat Heavy Electricals Ltd., Heavy Electricals, Bhopal, M/s. Instrumentation Ltd., Kotah, Mining and Allied Machinery Corporation and M/s. Triveni Structurals, the Consortium co-ordinates the production of equipment by private manufacturers as also in fulfilling their contracts.

PRIZE TURNKEY ORDER FROM MALAYSIA

Against stiff global competition, M/s. Textile Machinery Corporation Ltd. (Texmaco), Calcutta-56, received an important order from Malaysia for fabrication, supply and erection of steel works and cladding for Stage III extension of Tuanku Ja' Afar power station at Port Dickson, Malaysia. This order is claimed to be the biggest placed for industrial building steel works and cladding. The order has been won against competition from M/s. Hitachi of Japan and some other reputed firms abroad.

So far India has secured turnkey contracts worth Rs. 140 million from Malaysia for the construction of Tuanku Ja' Afar power station Stage III extension. The break up is Bharat Heavy Electricals Rs. 100 million for boilers, Texmaco Rs. 25 million for structurals and the Instrumentation Ltd. Kotah Rs. 5 million for instrumentation work.

M/s. Texmaco is one of the pioneers in the export of wagons to East African Railways in 1966 against global tendering valued at Rs. 9.2 million. Under this order the firm supplied 480 wagons to the East African Railways. Subsequently they supplied 500 wagons valued at Rs. 22.5 million to Hungarian State Railways. Satisfied with the quality, Hungary placed a repeat order for 1000 wagons valued at Rs. 58 million during 1969. The Calcutta firm has presently on hand an order for 434 gas type wagons worth Rs. 49.6 million and 425 EAS type wagons valued at Rs. 41.77 million from the Yugoslavia State Railways.

M/s. Texmaco have also supplied textile spinning ring frames valued at Rs. 23 million to the Arab Republic of Egypt, Syria, Ethiopia and Malaysia. The total export value of the Calcutta firm has reached Rs. 250 million mark already.

IRON ORE TO EAST EUROPE

India will be exporting about 1.5 million tonnes of iron ore valued at over Rs. 90 million to Czechoslovakia, Hungary and Poland during 1972-73. Contracts to this effect have recently been signed by the Minerals and Metals Trading Corporation of India Ltd. (MMTC), New Delhi. MMTC has already concluded a contract with Rumania for the export in 1972-73 of 1.8 million tonnes of iron ore of a value of about Rs. 105 million. This contract forms part of the ten-year agreement for a total supply of 22 million tonnes concluded with that country in 1970.

Of the 1.5 million tonnes contracted now, Czechoslovakia will account for about 0.72 million tonnes, Poland for 0.45 million tonnes and Hungary for 0.11 million tonnes.

JOINT VENTURE WITH MALAYSIA

A soap factory is to come up in Kuala Lumpur (Malaysia) with India's technical assistance. The Mysore Government Soap Factory, Bangalore is to collaborate with the Malaysian firm, M/s. P. Lall Stores, Kuala Lumpur. The Indian firm's share in the total equity capital of Rs. 1 million would be nearly Rs. 0.1 million to be subscribed through exports.

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The Mysore Government is to provide technical know-how including training of personnel, manufacturing information, design, engineering techniques and testing process.

The production capacity of the joint venture once it comes on full stream is estimated at Rs. 0.821 million. The venture is expected to net substantial foreign exchange earning for the Malaysian economy in view of that country being one of the largest producers of palm oil and coconut oil, which constitute the basic raw materials for the soap factory.

The above venture is the first of its kind to come up with the participation of a State Government undertaking in India.

EXPORT OF SPECIALISED SYNTHETIC FABRICS

India's export trade in silk and rayon fabrics has been on the upswing. As compared to the export value of Rs. 58 million during the first ten months of 1970-71, silk and rayon textiles fetched as much as Rs. 82 million in the corresponding period of the following year, thus registering an improvement of 40 per cent. Art silk fabrics have particularly evinced dynamism in the export field followed by cloth and made-ups, hosiery and knitware etc.

M/s. Reliance Textile Industries Private Limited, Bombay, who specialise in the production of sophisticated synthetic fabrics have plans to supply overseas to the tune of Rs. 20 million during 1972-73 as compared to their actual exports at Rs. 10 million in the preceding year. The firm have on hand export orders worth Rs. 16 million from developed markets including U.S.A., U.K., EEC countries and Canada. The company substantially contributes to the country's export growth in high unit value synthetic fabrics.

The Bombay firm is one of the leading manufacturers in India of cent per cent polyester and synthetic texturised dress materials. Their specialities include crimped georgettes, nylon georgettes, chamosatin and specialised fabrics for "unisex" dresses.

TRANSISTORS FOR HONG KONG

An export order worth about Rs. 2.8 million has been recently bagged by M/s. Hindustan Conductors Private Ltd. for Hong Kong. The order is for the supply of 10 million transistors. It is interesting that Hongkong which has the reputation of being one of the cheapest producers of labour intensive goods has looked to India for importing transistors.

The above firm have also booked an order from the U.S.A. for supply of one million integrated circuits worth Rs. 3.5 million.

OVERSEAS SUPPLIES OF PLASTIC MATERIALS

The total exports of plastic materials, regenerated cellulose and artificial resin during the year 1970-71 were of the order of Rs. 31.93 million as against Rs. 37.90 million during the preceding year. During the period of eight months, from April to November, 1971 the exports were worth Rs. 4.14 million.

In this group, the exports of high density polyethylene during 1970-71 were of the order of 1486 tonnes valued at Rs. 2.59 million. During the first eight months of 1971-72 (April-November 1971) the exports were 592 tonnes at Rs. 0.79 million.

M/s. Polyolefin Industries Ltd., Neville House, Currimbhoy Road, Ballard Estate, Bombay, the manufacturer of high density polyethylene exported 2046 tonnes of their product during 1971.

The total sales turnover of the firm was 18,000 tonnes in 1971 as against 13,000 tonnes in 1970 and 8,000 tonnes in 1969. The company is planning to expand its manufacturing capacity from 20,000 tonnes to 30,000 tonnes. Diversifying the production range the firm is taking up the manufacure of N-Butane-l, an essential raw material for its product.

AUTOMOTIVE TYRES AND EXPORT TRADE

The automotive tyres and tubes industry had based its production and increased its export performance year after year. Nearly Rs. 54.76 million worth of tyres and tubes were exported to a number of countries during 1970-71 as against Rs. 41.14 million during the preceding year.

During April-November 1971, the export of tyres was of the order of Rs. 43.42 million. Yugoslavia was the major importer of tyres followed by Burma, Czechoslovakia, Sudan, U.S.S.R., U.S.A., U. K. and Afghanistan. The export of inner tubes was of the order of Rs. 4.76 million. Afghanistan, Iraq, Nigeria, U.S.A., Yugoslavia, Burma, Czechoslovakia, Sudan, Kuwait, U.S.S.R. and Uganda were the main importing countries.

M/s. Dunlop India Limited, exported Rs. 30.34 million worth during 1971. Their exports were effected to about 70 countries thus registering about 10 per cent increase over their export performance of the preceding year. The firm's exports in 1971 were about 47 per cent of the industry's total exports. This achievement was due to the development of overseas market for a wide variety of goods manufactured by indigenous small-scale manufacturers.

The company is engaged in expanding their production programme and are diversifying their range of production. A new rayon truck tyre 'The Dunlop Highway 105' was introduced in the market after vigorous tests of 80 million kilometres running on all kinds of roads. The company also introduced a super taxi tyre in the market. In addition, another PG 6 tyre has been developed. Aircraft tyres of new sizes are also being developed including tyres for Boeing 737 aircrafts.

The Indian tyres and tubes industry turned out during 1970, 2.09 million numbers of giant tyres, 1.07 million numbers of giant tubes, 966,000 numbers of motor tyres, 1.02 million numbers of motor tubes, 166,000 numbers of motor cycle tyres. Besides, cycle tubes, scooter tyres and tubes, tractor tyres and tubes, ADV tyres and tubes, off the road tyres and tubes and Aero tyres and tubes are also being manufactured in large quantities.

EXPORT PERFORMANCE AND POTENTIAL

EXPORT TRADE IN RAILWAY WAGONS

A REVIEW

The railway wagon building industry in India has come of age. It manufactures about 40,000 wagons per year in terms of four wheelers. Ever since the Textile Machinery Corporation secured a major export contract for supply of 480 railway wagons to East African Railways in the year 1966, export performance in the line has been on the increase. A wide variety of export orders have been netted from several countries far and near. In 1970-71 the export value stood at Rs. 21.10 million. In the ten months of 1971-72 (April-1971-January 1972) the value of wagons export was more than Rs. 56.9 million.

The major varieties of wagons that were offered for export included covered wagons, bogie wagons, dumper wagons, cattle wagons, hopper wagons, tank wagons, covered G.A.S. wagons and open E.A.S. wagons. The main markets that have already placed sizeable orders on the wagon industry in India are Hungary, Poland, East Africa, Burma, Ceylon, South Korea and Sudan.

The State Trading Corporation secured the biggest ever offer in 1970 for the supply of 3600 wagons to Yugoslavia valued at about Rs. 380 million.

At the end of April 1972, the total value of orders for wagons exports on hand were of the approximate value of Rs. 560 million. The export target for this item for 1972-73 and 1973-74 have been fixed respectively at Rs. 680 million and Rs. 840 million.

Currently the pending orders for supply of wagons on hand are from Yugoslavia, Hungary, Ceylon, Iran, Iraq, Sudan, Poland and East Africa. It is expected that many more developing countries particularly in South East Asia and West Asia and Africa will soon place further orders for Indian made wagons and equipment. Wagon building industry being essentially a labour intensive one, the developed markets are steadily vacating this field of production.

The Government sponsored organisation, Projects and Equipment Corporation–a subsidiary of the State Trading Corporation of India - specialises in joint ventures and turnkey projects abroad. The turnkey projects that this Corporation could undertake include railway equipment such as rolling stock, locomotives, truck and signal equipment, public utilities complete industrial plants and projects and castings and forgings.

The tempo of wagon exports from India would have been more rapid but for the shortage of special steels and sections. However, the requirements of steel for export production of wagons are being met not only through proper allocation of indigenous material but also through bulk imports effected by M/s. Hindustan Steel Limited for distribution to exporters against firm overseas orders. The timely measures by the Government of India to avert the shortage in supply of steel have created confidence among overseas purchasers.

PLAN FOR BOOSTING COTTON TEXTILES

Compared to the export value at Rs. 950.5 million in 1968, cotton textiles of India earned Rs. 1044.7 million in 1969 and Rs. 1161 million in 1970. In the following year, the export value has been provisionally estimated at Rs. 1044.9 million. The declining trend in the export value in 1971 was mainly due to the fall in yarn exports. Export of cotton yarn in the first eleven months of 1971-72 (April 71-February 72) is estimated to be Rs. 194.5 million against Rs. 195.6 million during the same period in the preceding year. Among the reasons for the decline in the yarn exports is the foreign exchange difficulties faced by Ceylon and Burma which have been India's major cotton yarn importers. Some delay in the finalisation of bilateral agreement with the Arab Republic of Egypt had also affected the yarn exports to the country.

To provide a short in the arm to the cotton textile export sector, the Indian Government have formulated a series of helpful measures in recent months. With a view to ensure cotton supply at reasonable prices to the exporters, foreign cotton is being allotted to them against firm export orders. A scheme has been evolved for the modernisation of the textile machinery engaged in export production. Supply of raw material to cotton textile exporters is being ensured at international prices. The type of looms not manufactured indigenously for product adaption and expansion of export production is being allowed to be imported more liberally than before. To be able to meet the tastes of sophisticated western markets, registered exporters in the line are being allowed to import fabrics of all varieties for the manufacture of ready-made garments under custom-bond. Export of blended textiles is being encouraged by allowing import replenishment of man-made fabrics. With these and other timely measures, it is expected that the cotton textile industry will be able to not only regain earlier levels of achievement but also surpass the records already set.

In addition to these measures, the variety of cloth exported is being continuously diversified; the bulk of the export so far has been in shirtings, voils, mulls, drill, long cloth and shirtings. Besides newer varieties of textiles being introduced in the export stream, efforts to improve unit price realisation of most of the varieties are already meeting with success.

TRADE ARRANGEMENTS WITH EEC

The Government of India's emphatic desire is to establish closer trade and commercial relations with the Members of the European Economic Community. This desire has been stressed by *Memoranda, Aides Memoires* and other representations to the Community. It is envisaged that India will enter into a Commercial Cooperation Agreement with the Community. The Agreement aims at achieving a better balance in trade exchanges between the two parties. The trade balance is expected to be achieved by improving conditions of access to the EEC market for Indian products particularly for products like jute manufactures, coir products, cotton textiles and unmanufactured tobacco whose imports from India suffer disadvantages under the existing policies of the EEC. It is also sought by the Indian Government that special facilities be granted by EEC for products like handloom cotton and silk textiles.

The volume of Indian exports to the European Economic Community has been of the order of Rs. 1000 million and Rs. 990 million during 1969-70 and 1970-71.

In February 1972 the Indian Government requested both EEC and U.K. to maintain the existing advantages for India in the British market during the interim period upto 31st January 1975 pending negotiations of arrangements between the enlarged Community and India. Generally products originating in the Associated States of EEC are admitted into that market free of customs duties. The Community accords more favourable treatment for its imports from the Associated States than the general treatment given to import of products of third countries.

The major items of India's export interest which are subject to tariff barriers in EEC include cashew kernels, walnuts, coffee unroasted, pepper, cassia, celery seeds, turmeric, cashew shell oil, prepared or preserved vegetables, unmanufactured tobacco, tanning extracts of vegetable origion, simply tanned leather of goat, sheep, sheep's or lamb's wool or animal hair.

In addition to the tariff barriers, the Community imposes non-tariff barriers on several items including tea, coffee, tobacco, essential oils, coir yarn, mica, tanned hides and skins, cotton textiles, jute fabrics, woollen hosiery, iron and manganese ores, and so on. On tea, for example, despite the suspension of the common external tariff on loose varieties effective from 1st January, 1964, there are still high imposts of internal taxes in the Member States, namly, West Germany, Italy, France, Belgium, Luxemburg and Netherlands. On Coffee too the internal taxes are levied in some of the EEC member countries. Tobacoo happens to be a State Monopoly item in France and Italy. High internal taxes are also levied on essential oils, coir yarn, jute twist and yarn, mica, and tanned hides and skins. There are quota restrictions in the Community for cotton textiles and jute fabrics. While France imposes quota restrictions on jute bags and sacks, woollen hosiery, garments other than cotton and coir goods in Belgium and Italy, there are mixing requirements for vegetable oils.

INDIAN EXHIBITION IN TOKYO

The Indian exhibition in Tokyo organised by the Japan External Trade Organisation (JETRO) is creating a good interest in Indian products among Japanese industry and trade.

A Japanese firm has shown interest in importing about 1.2 million pieces of handtools every month from India. Yamaha and other automobile manufacturing companies of Japan want to import cables from an Indian firm. Some Japanese firms have also proposed collaborations for manufacture of precision gauges and sewing machines. Enquiries are also being received for traditional items like leather goods, wood carving and canned juices and foods.

So far business worth 4 million yens have been transacted in gems and jewellery displayed in the exhibition. Handicrafts and souvenir items amounting to nearly one million yens are being sold daily.

Another attraction in the exhibition is Indian tea served by the Tea Board. Some television companies and major hotels in and outside Tokyo have offered to publicise Indian tea through their network and sales channels.

Indian business representatives present in the exhibition have received valuable business contracts. The exhibition will move to Osaka from May 16, 1972.

INDIAN INVESTMENT ABROAD

Twentynine plants and factories abroad have been already set up with Indian assistance. Additionally, sixtyseven other joint ventures which have been approved by the Indian Government, are in various stages of implementation.

Among the countries where the joint ventures with Indian assistance have already come up, Kenya leads the list. The items of production in that country are textiles, gripe water, woollens, light engineering products and corks. In Malaysia four projects have been set up for manufacture of steel furniture, confectionery, precision tools and gauges and textiles. Textiles, soaps and woollens are the three lines of manufacture in the joint ventures that have been set in Ethiopia. In Nigeria, Indian assistance has proved beneficial for the production of engineering goods, solvent extraction and razor blades. Ceylon sought Indian assistance in three ventures for the production of sewing machines, glass and PVC leather cloth. Among the other countries, Libya sought Indian assistance for pipe manufacturing, Mauritius for mosaic tiles and rolling shutters, Uganda for a jute mill, Iran for the manufacture of spare parts and automotive components, Singapore for automobile accessories, Thailand for synthetic fibres and spinning, Ireland for tufted carpet yarn, U.K. for asbestos cement products plant, Canada for hardboard manufacture and West Germany for the production of oil engines, rice milling machines and hose clips.

INDIA'S SHARE IN WORLD EXPORT TRADE

As the share of Indian exports in the global export trade has been witnessing decline, the Government of India have introduced a series of measures to promote and diversify the export trade as well as improve the country's share in the world's exports. The promotional measures include supply of imported raw materials through replenishment licences/schemes, removal of constraints of production capacity/expansion and some fiscal measures.

Certain external and internal factors have contributed to the fall in India's share in world exports in recent years. World demand for major traditional products has not been growing fast enough. A commodity like tea has been faced with problem of slow growth of demand in the importing countries, excess production and lower prices. Export of jute manufactures was affected by the competition of synthetics and substitutes. Development of indigenous capacity in other developing countries as well as quantity restrictions in developed countries have been the other major factors that affected Indian exports of cotton textiles. Aside from the constraints on the supply side, there have been domestic shortages of some critical inputs like steel which are, however, sought to be gradually tided over. Further the industrial production base in the country has not expanded to keep pace with rising overseas demand. It is to facilitate capacity expansion that steps have been recently taken to liberalise the Industrial Licensing Policy in those areas with an export angle.

TRADING IN ALCOHOL

While 251,752 litres of alcohol were importing during 1970-71, its exports from India in the same year were 11,330 liters (valued at about Rs. 0.08 million). In the earlier year, alcohol imports into India were at a record level in recent years at 1.31 million litres. In that year the exports were 8,100 litres.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

PRODUCTION OF FERTILIZERS ON UPTREND

Nearly 200,000 tonnes more of fertilizer production has been recorded at 1.2 million tonnes during 1971-72 as compared to the preceding year. As against an output of 0.83 million tonnes of nitrogen and 0.23 million tonnes of phosphorus pentoxide in 1970-71 the production in the following year is expected to be about 0.95 million tonnes and 0.29 million tonnes respectively.

During 1971-72 two new fertilizer units have gone on stream namely, Madras Fertilizers Limited and the ammonia section of the Stage IV Expansion of Alwaye

Unit of M/s. Fertilizers and Chemicals Travancore Limited (FACT). With these the total installed capacity of fertilizers in India stood at 1.46 million tonnes of nitrogen and 0.5 million tonnes of P_2O_5. In 1970-71, the total capacity was 1.34 million tonnes of nitrogen and 0.42 million tonnes of of P_2O_5 (as by the end of January 1971).

Two more units–one at Durgapur and the other at Cochin–have been under trial run and are expected to commence commercial production shortly. Additionally, the Goa Fertilizer Project is in advanced stage of construction and is expected to go on stream in the later half of 1972-73. Substantial headway has also been made in the construction work in respect of Barauni, Namrup (Expansion) and Sindri Rationalisation projects.

Civil work at four new projects has also started during 1971-72. These projects relate to the two Fertilizer Corporation's coal-based plants at Talcher (Orissa) and Ramagundam (Andhra Pradesh), the fertilizer project of Indian Farmers' Fertilizers Cooperative Ltd. at Kalol and Kandla in Gujarat and the project of Southern Petro-chemical Industries Corporation at Tuticorin.

To bring about self-sufficiency in fertilizer production further proposals for establishing additional fertilizer factories, as also expansion of existing units are being pursued vigorously.

PROGRESS OF GUJARAT PETROCHEMICAL COMPLEX

A major part of the Gujarat Petro-chemical Complex consisting of the Aromatics Project and the Olefins project along with their down stream units will go into production by 1974. The Rs. 3000 million Complex is being implemented by the Indian Petrochemicals Corporation Limited (IPCL).

The Aromatics project is nearing completion. The project will produce 21,000 tonnes of orthoxylene, 24,000 tonnes of DMT (dimethyl terephthalate) and 2,500 tonnes of mixed xylenes. Production of DMT based on imported orthoxylene is expected to commence from July, 1972. The xylene part of the plant is likely to be commissioned by October 1972 when production of DMT, used for the manufacture of polyester fibre, will be from the basic raw material stage.

The olefins project of the Complex, estimated to cost Rs. 298 million will go on stream in 1974. The project is for cracking of naphtha to produce a number of primary petro-chemical raw materials to be processed further to produce intermediates.

There will be five intermediate units producing 24,009 tonnnes of acrylonitrile, 40,000 tonnes of polyethylene, 30,000 tonnes of poly-propylene, 30,000 tonnes of detergent alkylate and 20,000 tonnes of ethylene glycol annually. These units are also expected to be on stream in 1974 in coordination with the main units.

The polyethylene and polypropylene projects will provide plastic materials to replace scarce metals for a variety of uses. The acrylonitrile project will provide raw material for the manufacture of acrylic fibre which could be blended with wool. The project will also produce methyl methacrylate, a plastic which can be put to a variety of uses.

Detergent alkylate will be utilised for manufacture of synthetic detergents. This will reduce dependence on imported tallow and edible oils used in the manufacture of soaps.

Ethylene glycol to be produced in one of the units will be used as a raw material by the polyester staple fibre and polyester filament yarn manufacture. Nearly, 40,000 tonnes of polyester staple fibre and filament yarn are expected to be produced in the country by the end of the Fourth Plan period (1973-74).

IPCL is also setting up a synthetic rubber project which will use butadiene from the naphtha cracker plant. The project expected to go on stream in 1974 will reduce the pressure on the demand for natural rubber. The only other synthetic rubber unit, located at Bareilly (U. P.) produced 33,000 tonnes of synthetic rubber during the year 1971-72.

In addition to IPCL units, a project for the manufacture of 20,000 tonnes of caprolactum, a raw material for the manufacture of nylon filament yarn and nylon fibre is being implemented by the Gujarat State Fertilizer Company. The project is likely to start production in 1974 and will largely meet the raw material requirements of nylon units. The demand for nylon filament yarn and nylon staple fibre was estimated to rise to 40,000 tonnes by 1974-75. The persent production of nylon filament yarn is about 10,000 tonnes, manufactured from imported raw materials.

A unit is also being set up in the public sector for the manufacture of 12,000 tonnes of acrylic fibre. This product will be used by the woollen garment industry.

Five projects in the private sector for manufacture of polyester filament yarn utilising DMT produced in the Gujarat aromatics project are also coming up. Two of the new units and the expansion of one unit will be completed during the current year. The other two projects were likely to be commissioned within the next two years.

BALL AND ROLLER BEARING INDUSTRY

The rollor bearing industry in India, though of recent origin has already achieved a level of growth which has enabled it to play a prominent role in the industrialisation of the country.

Although the first factory to manufacture anti-friction rolling bearings went into production in 1950, it was not till a decade later that the second factory in the organised sector commenced prodnction. Since then another five factories in the organised sector have gone into production. Today, these seven units in the organised sector are, between themselves, manufacturing various types and sizes of anti-friction rolling bearings-ball bearings, thrust ball bearings, cylindrical roller bearings (including railway journal bearings), tapered roller bearings, needle bushes and needle roller assemblies.

The bearing industry in India is now catering to the requirement of vast field of bearing consuming industries engaged in the manufacture of automobiles, tractors, machine tools, textile machinery, electric fans, electric motors, pumps, conveyors, earthmoving machinery, agricultural implements, etc. The indigenous industry is also supplying bearings in the Indian Railways, and is today meeting even the Defence requirements to an increasing extent.

The production of roller bearings in the country has been rising steadily. Starting with a production of 41,000 bearings in the year 1960 and to 17.2 million nos. in 1970. The production in 1971 is estimated to be around 18.5 million nos. In addition, to the quantum increase in production, the range of sizes manufactured has also been widening. Although, at present, the bulk of the production is of bearing sizes upto 2″ bore diameter, bearing sizes of larger bore are also increasingly being taken up for manufacture by the industry, as are also different types of bearings.

In addition to the large number of standard bearing sizes manufactured in the country, the indigenous industry has also undertaken the manufacture of a number of special sizes for the automobile, textile machinery and machine tools industries.

With the steady increase in production, the demand for bearings is increasingly being met from indigenous sources. This is evident from the rapidly growing list of banned sizes of bearings brought within the purview of the annual import policy.

The annual demand for all types of bearings has been estimated to be around 23.0 million nos. in 1971-72 and 28 million nos. in 1973-74. With an estimated production of 18.5 million nos. of bearings in 1971, the bearing industry is presently able to meet about 80 per cent of the total demand in the country.

Besides meeting a large part of the internal demand ball and roller bearings are now having a growing export share. During 1970-71 nearly Rs. 2.15 million worth of bearings were exported to more than 25 countries as against Rs. 1.20 million worth supplied overseas in 1969-70.

INTERNATIONAL ECONOMIC COOPERATION

INDIA ADVOCATES PRINCIPLE OF STAND STILL BY DEVELOPED COUNTRIES

The Indian representative at the Third U.N. Conference on Trade and Development now meeting at Santiago (Chile) drew attention to the serious harm caused by "the quantitive restrictions and other non-tariff barriers imposed by developed countries in relation to export products of developing countries". The practice adopted by developed countries in placing restrictions on trade emerging from developing countries is indeed contrary to the oft-mentioned precepts of free trade and free interplay of market forces. The developing countries get baffled, the Indian representative cautioned, when the advanced countries choose to opt in favour of direct and indirect protective barriers. The Conference was urged to take positive action in this regard before the end of the current year. It would be of utmost importance that in relation to the recognition of the first U.N. Conference and subsequently endorsed in international development strategy the principle of Standstill should be directly and fully observed by developed countries, the Indian representative, Mr. Satish Chandra underlined.

"The principle of standstill has become even more urgent in context of Generalised System of Preferences. Priority must be given to earliest cancellation of these restrictions which apply to products covered by Generalised System of Preferences" he said. "If this is not done, the benefits accruing therefrom to developing countries will be nullified by quantitative restriction", he added.

Despite some diversification of economic of developing countries great majority still continue to depend on export earnings from wide range of traditional items. Many of these items, are handicaped by various form of quantitative and other restrictions in developed countries. Citing example of cotton textiles, the Indian representative declared that "long term arrangement on cotton textiles allows only very limited expansion of imports from countries under restraint. The law of comparative advantage has been clearly set aside by these unjustified restrictions. The textile manufacturers in developing world are prevented from entering affluent market on basis of open competition with a view to sustaining relatively uneconomic production in some industrially advanced countries. Concepts of rational allocation of resources and international division of labour will continue to remain a mere utopia until such unjustified trade restrictions are eliminated".

It was regretted that even the limited question of providing institutional machinery in UNCTAD to deal with problems of non-tariff barriers has continued to remain unresolved for last four years. "Need for establishing inter-governmental group with object of promoting consultations and negotiations in this field and suggesting measures on productwise basis for early reduction and ultimate elimination non-reciprocal basis of non-tariff barriers affecting export of developing countries", was urged strongly.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL GROWTH

MICROWAVE COMPONENTS DEVELOPED

The National Physical Laboratory, New Delhi, have successfully developed certain essential components for microwave equipment. The Laboratory's know-how in this field has been released to a Delhi firm, M/s. K.L.B. Electronics and the firm have already produced the components worth Rs. 0.5 million in the last three years which led to a foreign exchange saving to the tune of over Rs. 1.2 million.

The technical know-how for X-Band (3 cm. wave-length) microwave was commercially released by the Laboratory in 1968 and for C/XN band components (5 cm. wave-length) was released in 1971. It is expected that maximum application of this know-how might save foreign exchange of nearly Rs. 5 million. The indigenously developed components have proved to be of international comparability in terms of quality and end-uses.

Aside from the above components, the NPL has already perfected a variety of other microwave components like junctions, directional couplers, attenuators, pyramidal horns, matched terminations, twists, bends etc. Designs and techniques of fabricating 25 different types of components have been perfected. These components include specialised items like slotted lines with probes for the measurement of impedance, broad-band circulators and isolators for non-reciprocal transmission, frequency meters and variable attenuators for adjusting the microwave power level.

FATIGUE TESTING MACHINE

A process for the manufacture of Rotating Cantilever type fatigue testing machine has been developed by the National Aeronautical Laboratory, Banglore.

The fatigue testing machine is for determining the fatigue life and location of fatigue failure of metal specimens subjected to alternating stress cycles. The high operating speeds of modern machines and the extreme stress ranges to which the material of construction is subjected, make fatigue testing a necessity. Fatigue testing of materials is an important pre-requisite for the construction of structural components like aircraft parts.

The testing machine developed by the Laboratory at Bangalore, is supported as a cantilever and loaded by dead weights applied at the free end through self-aligning bearing which permit both vertical loading and the rotation of the specimen. A counter balancing lever system is used to balance the dead weight of the loading assembly. The specimen is rotated by an induction motor. A cut-out switch is provided to stop the machine when the specimen fails. To record the total number of cycles to failure, a six digit counter is fitted to an extension of motor shaft through a reduction gear.

At present the machine is being imported, but with the availability of an indigenous machine there will be considerable demand for the device. The fixed capital for setting up a plant with a minimum economic unit of 10 devices per year will be Rs. 150,000. The cost of production will be Rs. 8,000 per device.

WHITE OIL MANUFACTURING PROCESS

A process for the manufacture of white oils has been developed at the Indian Institute of Petroleum, Dehra Dun. The use of white mineral oils has increased with expanding technology the world over. Their vast range of applications extend from simple household oil to processing agents for the expanding plastic industry. These oils are used among others in the manufacture of petroleum jelly, food processing, hair prepraration, cosmetics, liquid paraffin, heat packing, paper impregnation, canning industry, plastic manufacture, sterilization of medicinal instruments, textile processing, animal feeds and industrial dust control.

NEW HYDRAULIC EQUIPMENT

The Central Railway Workshop at Jhansi has developed an hydraulic equipment capable of rectifying bulged end of wagons in less time and with much less expenditure. The new equipment will be able to effect rectification in just 1½ man hours instead of the usual 76 man hours.

DRAFTING SYSTEM FOR JUTE FRAMES

A new top arm double apron drafting system for jute spinning frames has been developed by M/s. Star Textile Engineering Works Ltd., Bombay. A prototype of this spinning frame of 20 spindles has been put into production operation at Indian Jute Industries Research Association, Calcutta. The cost of the drafting system works out to 40 per cent of the total cost of new jute spinning frames. The results obtained on this drafting system are encouraging.

A number of jute mills who took trails by processing slives of various batches had found that the yarn shows improvement in quality and also in certain cases higher productivity.

JUTE AND JUTE MANUFACTURES

Eversince jute has been accepted as a suitable substitute for flex and hemp for manufacturing packing material, the jute industry has come to occupy an important position among the agro-industries of the country. India today is one of the major jute producing countries and leads the world in the production of jute goods. Jute manufactures constitute the largest single item of export from India.

The area under jute cultivation is being expanded year after year. The area has been increased by 13.4 per cent or 99,700 hectarcs to 846,000 hectares during the 1971-72 season over that of 1970-71. This increase in the area has been shared by all the jute producing states particularly West Bengal. In West Bengal during 1971-72, the area under jute increased by 69,700 hectares to 475,800 hectares. The estimated area under jute cultivation was 134,000 hectares in Assam, 7,100 hectares in Meghalaya, 152,200 hectares in Bihar, 54,200 hectares in Orissa, 132,200 hectares in Uttar Pradesh and 9,500 hectares in Tripura. The area under mesta cultivation was 275,300 hectares in 1971-72. The 1970-71 combined jute and mesta crop was of the order of 6.14 million bales (1 bale = 180 kg). Of this, jute alone had a share of 4.91 million bales. In the 1971-72 season the jute and mesta production is placed at 7.2 million bales. The target for 1972-73 for jute and mesta is around 8.1 million bales.

To increase further the cultivation of jute and mesta, an intensive Jute District Programme in West Bengal, Bihar, Orissa, Assam and Andhra Pradesh is being taken up.

Aimed at producing 840,000 additional bales of raw jute, the two year programme is to commence next season (1972-73) in six districts of four Eastern States of India. The area to be brought under the intensive cultivation accounts for nearly 47 per cent of the total area cropped with jute in the country. A total area of 300,000 hectares is to be brought under the scheme to receive improved package practices and another 30,000 hectares under an extension programme. A separate mesta development programme in Andhra Pradesh is also aimed at for producing 40,000 bales of the fibre.

Jute Products

Besides the traditional items like sacking and hessian cloth and bags, the industry has been prograssively evolving new products like carpets backing cloth, poly lined jute goods, jute furnishing fabrics etc. Jute products can be applied to various industrial and functional uses like canvas and tarpaulins, jute based hard laminates, soft boards for insulation and other.

The production of various jute goods during 1971-72 was of the order of 1.27 million tonnes as against 1.06 million tonnes in 1970-71. The 1971-72 output consisted of 347,400 tonnes of hessian, 230,000 tonnes of carpet backing, 560,700 tonnes of sacking and 134,500 tonnes of other products.

The proposed production target for 1972-73 is 1.36 million tonnes, consisting of 400,000 tonnes of hessian, 260,000 tonnes of carpet backing, 560,000 tonnes of sacking, 140,000 tonnes of other products.

Product Development

Jute products are generally considered useful only as packaging material. Thanks to research, a variety of new uses is now sought to be explored in India.

In view of the increasing need for product diversification in jute industry owing to competition from synthetics and substitutes, the Indian Jute Industry's Research Association, Calcutta (IJIRA) have been constantly exploring new end-uses and product variations.

IJIRA has developed a superior light weight bag which proved its worth in extensive test marketing trials arranged by the Australian Wool Board.

As a decorative material, jute has a unique appeal to the consuming public. Its appeal lies in its rugged textural value and in its pleasing irregularity that is appreciated by palates which have become jaded on a monotonous diet of machine made product.

Jute for decorative purposes however suffers from certain defects : un-attractive natural colour of jute, discolouration of jute fabrics, difficulty in smooth draping into pleasing folds due to the heavy constructions of jute fabrics, susceptibility to dirt and difficulty in washing and ironing and finally the harshness of the facric and its characteristic to shed small fibre fragments.

IJIRA has over the years mounted a multi-pronged effort to remove these shortcomings. Patents have been taken by the Association in many countries for a bleaching process for jute which gives creamy yellow fabrics, with considerably enhanced resistance to discolouration by light. In addition, the bleached fabric is free of surface hair. This process has been licensed for use to ten firms in India and one in the U. K. Finishing techniques have been developed to impart wrinkle recovery, a silky handle, an easy fall or drape and finally, freedom from fibre shedding. Dyeing and printing techniques have been standardised to give a spectrum of colours ranging from pastel shades to brilliant colours. With this kind of a face-lift, jute fabrics are now poised to invade homes and offices for such uses as wall-coverings, curtains and drapes, lampshades and even upholstery.

The IJIRA, in collaboration with the Jute Carpets Backing Council of the United States, is also evolving an all jute construction which is suitable for high density tufting, which is an important pre-requisite to perfect the carpet backing technology.

Jute Mill Machinery

The indigenous capacity is now in a position to manufacture almost the complete range of jute mill machinery and meet the demand of the jute industry. The manufacturers are turning out such types of machinery as spinning frames, carpet-backing looms, roll/cone winders-scroll and traverse bar type, copwinders, softeners, drawing frames, prebeaming machines and jute carding machines. The manufacture of broad looms, has helped the Indian jute industry to produce carpet backing cloth of the required specifications of importing countries. The jute carding machines added to the production stream a few years back incorporate the new concept in jute card design with many new features for increased production and improved product quality. Continuous efforts are being made by the manufacturing units to reduce the import content of the jute machinery manufactured in the country. Apart from machinery all varieties of spares and accessories are also produced in the country.

Export Trade

After a declining trend in 1970-71, export of jute manufactures have picked up and stood at Rs. 1864.61 million in the first eight months of 1971-72 as against Rs. 1194.41 million in the corresponding period of 1970-71.

The export composition during April-November, 1971 was: carpet backing cloth 167,518 tonnes at Rs. 730.67 million, hessian cloth 167,079 tonnes at Rs. 639.48 million, sacking cloth 2562 tonnes at Rs 6.95 million, narrow fabrics 1690 tonnes at Rs. 7.78 million, jute bagging for raw cotton 27,994 tonnes at Rs. 54.48 million, jute corn sacks 2900 tonnes at Rs. 6.92 million, jute hessian bags 49,206 tonnes at Rs. 140.02 million, jute sacking bags 68,205 tonnes at Rs. 178.57 million, jute wool sacks 6584 tonnes at Rs. 16.59 million and jute tarpaulins, tarpaulin tents 4924 tonnes at Rs. 21.05 million. Other jute products like jute canvas, cordage and rope, special fabrics, poly-lined bags, flour coverings, mats and mattings, tapestries etc. were also active in the export trade. Raw jute and cuttings had an earning of Rs. 12.56 million in the period.

Export earnings from jute goods in the entire year of 1971-72 is estimated to have gone up by Rs. 1124 million, over those of 1970-71. Exports are placed at 791,000 tonnes valued at Rs. 3023 million as against the export value of Rs. 1899 million in 1970-71. Varietywise the exports will be 328,200 tonnes of hessian, 260,000 tonnes of carpet backing, 136,200 tonnes of sacking and 66,600 tonnes of other jute goods.

U.S.A. is the main market for many of the jute products. Nearly 80 per cent of the production of carpet backing is exported to U.S.A. and the intake by this market had been steadily rising till 1969-70. During the early part of 1970 the demand for carpet backing slumped and consequently the exports had a steep fall. However, the demand for this item has revived in the U.S. market and exports are picking up.

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In the eight months period April-November 1971, U.S.A. accounted for 129,996 tonnes of carpet backing cloth valued at Rs. 567.24 million. That market absorbed as much as 61,480 tonnes of hessian cloth of a value of Rs. 241.01 million. Export of sacking cloth to the U.S. market stood at 1195 tonnes worth Rs. 3.94 million, while that of narrow fabrics was of the order of 1206 tonnes at Rs. 5.68 million. Jute bagging for raw cotton was also mainly directed to U.S.A. whose intake amounted to 27,511 tonnes valued at Rs. 53.40 million.

The export target for 1972-73 is 750,000 tonnes at an estimated value of Rs. 2699 million composed of 315,000 tonnes of hessian, 260,000 tonnes of carpet backing, 105,000 tonnes of sacking and 70,000 tonnes of other products.

To ensure quality, the Indian Standards Institution has formulated standards for a wide range of jute products. Many of the items have also been covered by compulsory quality control and preshipment inspection scheme.

To deal with import and export, undertake export promotion measures, purchase jute and build buffer stock, the Government have set up a Jute Corporation of India. □

Attention

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BUSINESS FROM FAIRS ABROAD

Direct participation of Indian firms at trade fairs and exhibitions abroad has resulted in firm business worth Rs. 22.5 million during April-December 1971. In addition to governmental organisation or participation at fairs abroad, private parties form India are permitted to arrange direct participation for which suitable foreign exchange is released. In the period reviewed 62 parties were offered foreign exchange to the extent of Rs. 0.6 million. Besides the firm contracts concluded by 45 parties among them, negotiations are on for allocation of business worth Rs. 6 million more.

The products for which the business was so generated include engineering, jeeps and automobile spares, knitting machines, surgical instruments and dressings, batteries, moulding machines and diamond tools. Many other products for which the business was secured are crushed bones, cotton waste, coir yarn, books, jute goods, handicrafts including semi precious stones, printed linoleum floor coverings, dry fruits including walnuts and H.P.S. groundnut, tea and canned shrimps.

The international events where the business was secured include Diamond Tools and Equipment for Diamonds exhibition, Kiev (USSR); XII International Printing Machinery and Allied Trade Exhibition, London; First International Book Fair, Singapore; Man and His World Exhibition, Montreal (Canada); International Fair of Engines and Motor Vehicles, Belgrade (Yugoslavia); Fourth Asian Regional Conference and Exhibition on Soil Mechanics and Foundation Engineering, Bankok (Thailand); Frankfurt Book Fair, Frankfurt (West Germany); International Research and Development Exhibition, London; 46th International Convention and Exhibition of World Associate of Detectives, Montreal (Canada); Industrial Fair, Sydney (Australia); Third International Costume Jewellery Exhibition (JABONEC, 71) Czechoslovakia; SEHM FAIR, Paris (France); Sixth Asia Electronics Conference and Exhibition, Manila (Philippines); Specialised Exhibition for Industrial Diamonds and Diamond Tools, Bucharest (Rumania); GEDO BOUTIQUE International, Dusseldorf (West Germany); British Industrial Exhibition, Singapore; Domestic Textiles Exhibition, London; Leipzig Autumn Fair 1971; Timber and Timber Products Exhibition, Rotterdam (Netherlands).

Among the contracts signed, jeeps and automobile spares are to be supplied to Yugoslavia at a value of Rs. 1.73 million; printed linoleum floor coverings worth Rs. 3.52 million to USSR; knitting machines at Rs. 3 million to German Democratic Republic and Czechoslovakia; electric batteries to GDR worth Rs. 1.78 million; diamond tools at Rs. 0.9 million to Rumania and Czechoslovakia; books and printed material at Rs. 0.34 million to South Korea, Burma, Ceylon, Singapore, U.S.A., U.K., Federal Republic of Germany and Norway; fashion garments to Federal Republic of Germany at Rs. 173,000; crushed bones to GDR and Czechoslovakia at Rs. 0.94 million and handicrafts including semi-precious stones to GDR at a value of Rs. 0.64 million. Additionally, the contracts are under negotiations for the supply of Rs. 2.1 million worth of jeeps and automobile spares to Yugoslavia, crushed bones at Rs. 1.66 million to GDR and Czechoslovakia and dry fruits worth Rs. 1 million to GDR.

OVERSEAS SUPPLY OF DYESTUFFS

Export value of dye, tanning and colouring materials was of the order of Rs. 72.6 million during 1970-71. In the first eight months of 1971-72 (April–November 1971) exports in the line totalled Rs. 31.94 million. A wide variety of dyestuffs has been active in the export trade. Dyeing and tanning and synthetic tanning materials; pigments, paints, varnishes and colouring materials; and synthetic dyestuffs, natural indigo and colour lakes are among the categories that figure prominently in the country's export list.

M/s. Amar Dye Chem. Ltd., Rangudyan, Sitaldevi Temple Road, Mahim, Bombay-16 have nearly doubled their export performance in 1971 as compared to the preceding year–Rs. 5.55 million against Rs. 2.88 million. In the current year the export performance is expected to improve further as already in the first four months (January-April) the export value of the firm has touched Rs. 2.58 million as against Rs. 1.76 million during the same period in 1971.

The firm's plant for the manufacture of phthalocyanine blue has recently gone on production stream. They have also started manufacturing one rubber chemical, namely, antioxidant phenyl beta naphthylamine. The firm plans to manufacture various other items such as toluene di isocyanate and hydrogen peroxide.

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EXPORT ORDERS FOR SYNTHETIC RESINS

Federal Republic of Germany placed an order on an Indian firm for the export of synthetic resins valued at Rs. 250000 per annum on a regular yearly basis.

The export firm, M/s. Dr. Beck and Co. (India) Limited, Pimpri, Poona have also secured a trial order from a chemical manufacturing organisation in **the U.S.A.** for the supply of low temperature synthetic **resins.** Specializing in the manufacture of spnthetic enamels, varnishes and resins, the firm built up substantial export trade to the Soviet Union, Arab countries and Greece, to reach a total value of Rs. 80 million over the last eight years. India's Export of resins, both synthetic and artificial was valued at Rs. 31.93 million during 1970-71. The range of resins supplied overseas included products of condensation, poly-condensation, unsaturated polyester, polyester silicon etc. as also products of polymarization and co-polymarization, regenerated cellullose derivative and other artificial resins. Of the total export in the line, compressed low pressure polyethylene resins were exported in the same year to the tune of Rs. 21.51 million mainly to Yugoslavia (Rs. 16.9 million). Substantiale xports of polystyrene moulding powder were also effected in the year mainly to the Arab Republic of Egypt.

Production of PVC resins was of the order of 38,680 tonnes during 1970-71 as against the available capacity of 42,840 tonnes. U. F. synthetic resins were manufactured to the tune of 4340 tonnes in the same year while their instaled capacity was of the order of 5460 tonnes.

RECOGNITION OF CHEMICAL EXPORTERS

The export value of Chemicals and allied products under the charge of the Chemicals and Allied Products Export Promotion Council was of the order of Rs. 370 million during 1971-72. The export value in the previous year was of about Rs. 405 million. Among the individual categories of chemical based products that were exported, auto tyres and tubes and rubber products showed an improvement of Rs. 112 million from Rs. 97 million. Overseas supplies of vacuum flasks, sheet glass, sanitary ware and carbon paper also increased.

Under the Export Award Scheme organised by the Council, five leading exporters have been recently given special awards. They are M/s. Ballarpur Paper and Straw Board Mills Ltd. Ballarpur, Ceat Tyres of India Ltd. Bombay, Dunlop India Ltd., Calcutta, Hunsur Plywood Works Pvi. Ltd. Hunsur and Salem Magnesite Ltd., Salem.

In addition, the following firms have also been recognised as successful exporters in the year 1970-71 and were presented export badges by the Coucil : Bata Shoe Co. Pvt. Ltd., Cosmos Indian Rubber Works Pvt. Ltd., Dr. Beck & Co. (India) Ltd., Eagle Vacuum Bottle Mfg. Co. Ltd, Forage & Co., Greaves Cotton and Co. Ltd., Hindustan Pilkington Glass Works Ltd., Ineian Plywood Mfg. Co. Ltd., Jintan Clinical Thermometer Co. (India) Pvt. Ltd., Kamani Metallic Oxides Pvt. Ltd., Metro Wood & Engineering Works Pvt. Ltd., Minerals (India) Inc., Shree Digvijay Cement Co. Ltd., Sudarshan Chemical Industries Pvt. Ltd. and Wood Craft Products Ltd.

TELEPHONE EQUIPMENT FOR EXPORTS

Overseas demand for telephones, telephone spares, and technical sevices has been on an upward trend. The major importers of these items are mainly in the South East Asia and the Afro-Asian countries. The Indian Telephone Industries Ltd., (ITI) Bangalore has received a number of export orders from countries like Afghanistan, Australia, Belgium, Burma, Ceylon, Ethiopia, Greece, Indonesia, Kuwait, Kenya, Malaysia and Nepal. Even the most developed countires like U.K. and U.S.S.R. have placed orders on the firm.

ITI's total export trade in telephones and telecommunication equipment during 1971-72 was of the order of Rs. 3.21 million as against Rs. 5.25 million during the previous year. During 1969-70, it was of the order of Rs. 10.4 million.

In the last quarter of 1971-72, the total export of telephones and telecommunication equipment to Australia were worth Rs. 0.39 million, to Kenya Rs. 0.46 million, and to Tanzania Rs. 0.14 million. Nigeria, Afghanistan, Belgium, Ethiopia, Greece, Belgium, Burma, Ceylon, Malaysia, Kuwait and Nepal were the other important destinations in the period.

The production range in Indian Telephone Industries include telephone exchange equipment, crossbar telephone exchange spares, spares for telephone equipment, telephone spares, transmission telecommunication spares, automatic telephone switch frames, long distance transmission system, speech and telegraphy including coaxial and microwave, special niggedish transmission equipment for defence services, electronic test instruments and components etc.

The ITI's total value of production was of the order of Rs. 300 million. The total production of the company is expected to go up to 450,000 telephones per annum by 1974 from the present production capacity of over 200,000.

The ITI has successfully substituted imported raw materials and components by indigenous materials related to ferrous and non-ferrous alloys, plastics, wires and cables, machinery and electric Components. The firm is making efforts to minimise use of metals like brass, nickel, silver, copper which are being imported.

PHARMACEUTICAL PRODUCTS AND EXPORT DYNAMISM

During 1971-72, export trade in medicinal and pharmaceutical products witnessed an upsurge. From Rs. 56.19 million in the corresponding period of the previous year, the export value during April-November 1971 rose to as much as Rs. 64.25 million. During 1970-71 the value at Rs. 84.65 million was a discernible improvement over Rs. 60 million worth of foreign exchange earned from the exports in the preceding year.

M/s. Pfizer Ltd., I.C.I.C.I. Building, Backbay Reclamation, P.B. No. 667, Bombay-20 contributed as much as Rs. 6.2 million to the total export stream in pharmaceuticals from India during 1970. The company was able to achieve higher production levels in the year as compared to the previous years at their Thana Plant. The basic manufacturing plant for Isoniacid has been recently commissioned.

EXPORT PERFORMANCE AND POTENTIAL

NEW DYNAMISM ON FOREIGN TRADE FRONT

India's export trade including re-exports amounted to Rs. 15,770.1 million during 1971 as against Rs. 15,170.8 million in 1970. The export expansion would have been higher but for the operation of adverse factors beyond the control of the Indian Governmant and industry. The crises of the international monetary system and the collapse of the system of fixed exchange parities which led to deterioration in world trading environment proved to be major deterrents against India's export promotion. There were also certain demestic bottlenecks such as the shortages of critical inputs like iron and steel and raw cotton.

The Government of India have undertaken a series of helpful measures to minimise the impact of adverse factors on the supply side and to enthuse the trader to strenghten and broad base the export effort. High priority is attached to introducing new products in the export stream as well as to diversify the destination of exports and sources for meeting the country's requirements alike. The policy of expansion of trade and economic cooperation between India and other developing countries also constitutes an important element in the country's export endeavour.

In expanding the country's export effort high priorities have been accorded to a policy of progressive diversification both in the destinations of exports and in the sources for meeting the import requirements therefor.

The country's foreign trade policies are also designed to provide framework for a sustained expansion of our foreign trade in line with the declared social and economic objectives. A certain degree of stability and continuity in policies is essential for providing an environment conductive to the growth of exports. To that end, the industrial licensing policy and the import policy in 1971 continued to accord high priority to the expansion of export-oriented production. At the same time, a number of additional measures were undertaken to impart a new sense of dynamism to the country's foreign trade.

Imports during 1971 were at Rs. 18,420.8 million increased to about Rs. 2000 million or 15.8 per cent over the imports of 1970, The recent import bill has been so designed to save imports, encourage import substitution and promote exports. Several steps were undertaken to enlarge the role of the public sector in the country's foreign trade. It is expected that by the end of March 1972 the share of public sector agencies in India's trade would be about 70 per cent.

INDO - SOVIET TRADE PROTOCOL

Visualising total trade turnover to improve to Rs. 5000 million during 1972, a Trade Protocol has been recently signed between India and the Soviet Union. Important requirements for the Indian industry in areas like newsprint, fertilizers and non-ferrous metals have been agreed to be supplied by the Soviet Union under the Protocol. It is also envisaged that Soviet tractors worth Rs. 50 million would be supplied to India as a first step of Soviet help in building Indian capacity in tractor manufacture.

The targetted volume of two-way trade between the two countries during 1972 is to improve by 30 per cent as compared to 1971.

Indian exports to U.S.S.R. are expected to make a big headway in a number of consumer sector industries including garments, hosiery and cosmetics. The value of cosmetics to be supplied by India alone would be over Rs. 80 million.

In addition to the consumer product exports, a wide range of industrial equipment has also been listed under the protocol. These industrial products include garage equipment, accumulators, power cables, wire ropes, chemicals and paints. In view of the scarcity of non-ferrous metals in India, it has been agreed that the Soviet Union would be supplying larger quantities of zinc and copper during 1972 than before. In fact, the allocation of copper has been increased nearly four-fold from 400 to 1500 tonnes. The Soviet Union will also supply over 200,000 tonnes of fertilizers which are indeed helping the Indian industry, considering this year's acute domestic shortage for this product. Fishing trawlers, kerosene, power and electrical equipment, mining and oil drilling equipment, transport machines are also among the products agreed for supply from U.S.S.R.

Indo-Soviet Trade has improved manifold since the Rupee payment agreement came into being in 1953. During 1970-71 Indian exports to the Soviet Union were of the order of Rs. 2098.48 million and the Soviet Union supplies to India in the same year stood at Rs. 1046.81 million. Aside from substantial increase in the volume of trade, there has been a suprising diversification in the product range traded by both the countries. Happily, the Indian industry has been able to promote its supplies of several non-traditional products including light engineering products, chemicals and chemical-based products in addition to a host of consumer goods.

EXPORT TRADE IN TEA

A REVIEW

Compared to the export earnings at Rs. 1466.5 million (201.6 million kg.) in 1970-71, export trade in tea improved to Rs. 1607.0 million (214.78 million kg.) during 1971-72. Happily, the improvement in 1971-72 over the previous year would more than compensate the fall in tea exports in 1969-1970 when the export value was only Rs. 1245. million (1741.1 million kg.) as against Rs. 1565.1 million (200.8 million kg.) of 1968-69.

Tea is one of the foremost earners of foreign exchange in India, accounting for about 10 per cent of the country's total export earnings. In 1970 India's share in the world tea exports was nearly 33 per cent.

Tea production during 1971 was of the order of Rs. 428.15 million kg. while it was 421.82 million kg. in 1970 and 393.58 million kg. in 1969.

In view of the growing competition that the tea industry has to face in international markets, greater emphasis is being placed on improving the yield and the quality of tea produced in the country. To this end several schemes are in operation under the management of the Tea Board, Calcutta.

INDIA'S JOINT VENTURES ABROAD

The latest position of India's joint ventures abroad is that 135 proposals have been so far approved by the Government of India at an approved Indian investment of Rs. 207.81 million. Of the ventures approved thirtynine have been abandoned for which approved investment was Rs. 45.7 million. Twentynine joint ventures are in operation right now, and the investment approved therefore is Rs. 62.90 million. Sixtyseven joint ventures are under implementation whose investment value is Rs. 99.21 million. Thus the effective number of joint ventures both in operation and under implementation excluding abandoned projects is ninetysix with the total investment approved at Rs. 162.11 million.

Of the joint ventures that have gone on production stream as many as fifteen have started production only after 1969 and in view of initial high working expenses, provision to adjust profits against accumulated liabilities it is perhaps too early to expect them to declare dividend. However, the earnings so far reported are Rs. 4.93 million from dividends, Rs. 5 87 million from know-how fees, royalty and managerial fees, Rs. 41.56 million, from additional exports on cash over and above those adjustable against equity.

EXPORT OF FASHION GARMENTS PICKING UP

Continental markets have come to substantially increase their purchases from India of fashionable ready-made garments. Export in the line to the U.K., for instance, have been provisionally placed at Rs. 8.65 million during 1971 as compared to Rs. 6.19 million in 1970. In West Europe the European Economic Community countries are estimated to have imported worth Rs. 10.33 million in 1971 against Rs. 7.66 million in the preceding year. Their import was hardly Rs. 1.73 million in 1969 and Rs. 0.3 million in 1968. The Member countries of European Free Trade Association (excluding U.K.) have nearly doubled their intake at provisionally Rs. 14.64 million in 1971 as compared to Rs. 7.7 million in 1970.

INDIAN FREIGHTER HAULS GIANT TOWERS

The gigantic towers of various ores and weights, manufactured by SNAM Refineries of Italy have been recently hauled by Indian Steamship Comany's (ISC) freightor to Khoramshahr in Iran. On the haulage of these towers the company earned a handsome freight ($ 390,000). One of the towers alone - about 150 feet long with a diameter of 16 feet weighing about 70 tonnes earned about $ 28,000 as freight.

The ISC's vessel caters to trade emanating from Adriatic ports, Western Italy, South France, Mediterranean Spanish ports and West Asian Gulf ports.

ECONOMIC GROWTH AND INDUSTRIAL DIVERSIFICATION

INDIA'S ATOMIC POWER INDUSTRY

A REVIEW

With the construction work having been completed, the Unit I of the Rajasthan Atomic Power Project is ready for commissioning. It is expected to reach the 'criticality' stage by June 1972. The Unit II of the project for which installation of nuclear and conventional components is in progress, is expected to become critical by March, 1975.

The progress at the other power projects in the country is encouraging. At the Madras Atomic Power Projects, designs for civil structures have been completed, and the work for the construction of the reactor and turbine buildings of Unit II of the Station has been initiated. The Tarapore Atomic Power Station which generated 4590 million units of electricity since its commissioning in 1969 continues to operate with high efficiency. Further plans for new nuelear power stations are underway. Construction work on the Variable Energy Cyclotron at Calcutta is progressing ahead. The Cyclotron will be a modern research facility in nuclear physics. Work on electro-thermal process for phosphatic fertilizers was initiated too. Suitability of commercially available Indian phosphate rocks and other raw materials is being studied, for the process.

In the field of nuclear medicine, the Radiation Medicine Centre of the Bhabha Atomic Research Centre investigated several cases. The Centre also undertakes clinical nuclear medicine, training of medical personnel in the use of radioisotopes and application of radioisotopes in medical research.

As for space technology, development activities in connection with Satellite Launch Vehicle 3 in the areas of propellants, nozzles and motor chambers, control systems, telemetering and tracking, are in different stages. Besides the basic facilities which are already operating, a propellant fuel complex is being built at Thumba. The unit is expected to go into production by the middle of 1973.

With the commissioning of this complex, India will be self-sufficient in basic fuel requirements of high energy propellants for rockets and space vehicles. The complex will produce high energy fuels like polysulphides, polyurethenes, polybutadienes etc. and plasticisers, catalysts and stabilisers–items which are not readily available in India.

The Thumba Equatorial Rocket Launching Station launched a total of 129 rockets up to March 31, 1972, of which 66 carried scientific experiments while 63 were test rockets. The rockets sent up included M-100 meteorological rockets, Nike-Apache rockets Rohini 100, Rohini 125 and Menaka - I rockets, Dual Hawks. The scientific rocket experiments for the study of the equatorial ionosphere, the electroject, and the neutral upper atmosphere were conducted with payloads developed and fabricated at the Physical Research Laboratory at Ahmedabad.

POWER GENERATION CAPACITY TO BE DOUBLED

India proposes to double her power generating capacity to 41.5 kw. by 1978-79 (during the Fifth Plan). The power generating capacity is expected to be achieved by 1973-74 is 20.2 kw. at the end of fourth Plan. Efforts are being made to commission another 0.8 million kw. of capacity by March 1974. Additional generation schemes are also being planned in advance so as to afford benefits during the early period of the sixth plan.

The significant objective set for the fifth plan is to remove the regional and statewise imbalances in power development and reduce disparity of tarrifs prevailing in various power schemes.

Taking cognizance of the future power requirements in the various sectors of economy during the fifth plan period, assessment of power requirements is under consideration.

The power generation in India increased to 61.2 billion kwh. in 1970-71, as against 30.1 billion kwh. in 1960-61 and 6.6 billion kwh. in 1950-51. This increase was achieved at a compound rate of 11.8 per cent during fifties and sixties. Considering the accelerated tempo of industrial growth envisaged and increasing power demand in agricultural sector and extensive rural electrification programme during the fifth plan a growth rate of 12.5 per cent a year has been estimated. Keeping in view the total energy generation required during 1978-79, the object has been placed at 15.8 billion kwh.

The addition of 21.8 million kw. to generating capacity during the fifth plan would comprise 6.7 million kw. from continuing fourth plan schemes, 7.8 million kw. from proposed extensions at developed sites and 7.3 million kw. from new generation schemes. The break up is 11.8 million kw. thermal, 1.4 million kw. nuclear and 8.6 million kw. hydro capacity.

Under transmission system, a broad 400 kv. network to facilitate transmission of large blocks of power has been proposed to be established. This would also help in realisation of an all India power grid. Distribution network to carry power to ultimate consumers has also been provided for estimating additional power likely to be available by the end of the fifth plan, addition of about 16,400 circuit kws. of 220 kv. lines and 7300 circuit kws. of 400 kv. lines, over and above the additions to 66 kv. and 110 and 132 kv. network, has also been decided. During 1969-70, about 38,000 circuit kws. of 110 kv. and 121 kv. lines and 11,000 circuit kws. of 220 kv. lines had been constructed.

Under rural electrification programme electrification of 74,255 villages and energising of 1.47 million pump sets is estimated under fifth plan as against the fourth plan target of electrification of 50,000 villages and energising 1.25 million irrigation pumps. The rural electrification Corporation, Financial institutions and state electricity boards are expected to provide funds for this work. The plan outlay is of the order of Rs. 2946.9 million. The provision for Rs. 150 million has also been made for electrification of Harijan localities.

T.V. MANUFACTURE WITH COMPLETE INDIGENOUS KNOW-HOW

Creation of additional manufacturing capacity for television sets in India would not need any foreign collaboration as the complete know-how is available indigenously. This is the major decision announced by the Electronics Commission of India. It has also been decided that no T.V. set with foreign brand name be allowed to be manufactured in India that no licence need be given to companies with foreign equity holdings. While sanctioning the additional capacity, small scale industrial units would be accorded preference to the extent of ½ of total capacity. Also reasonable additional capacity would be granted to public sector undertakings both Central and State as also those involving State industrial development corporations.

Currently the requirements in the immediate future, say five to ten years, are being assessed by the Electronics Commission in all sectors of electronics including equipment, components and materials. An assessment of the import requirements to sustain the capacities already installed or are planned for the industrial undertakings is also being made. Four technical panels have been constituted under the auspices of the Commission to examine in detail prospective selected areas of electronics such as electronics desk calculators, Ferrites, Semi-conductor Devices and Glass bulbs for television and such applications.

To promote indigenous design and production in the field of components, the Commission have recently approved a proposal made by M/s. Electronics Corporation of India Limited for the manufacture of small and medium sized computers the TDC-16 and TDC-32 machines. The Corporation's developmental programme of a mini-computer in the environment is also being studied.

Recently the areas that have been successfully developed include computers/peripherals; electronic instrumentation; materials and components (including modern crystal growth facilities, semi-conductor memory systems, light emitting diodes, liquid crystal displays, magnetic materials, according to the Department of Electronics.

PRODUCTION REVIEW OF DEFENCE UNITS

The 38 ordnance factories and public sector undertakings of the Ministry of Defence have achieved a record production of Rs. 3140 million during 1971-72. Of this, the heavy vehicles factory, Avadi accounted for Rs. 200 million worth of production comprised of Vijayanta tanks, armoured recovery vehicles and spares.

Mountain guns, L/70 radar-controlled anti-aircraft guns, mortars, small arms, ammunitions, vehicles, clothing and general stores were valued at over Rs. 1180 million. The recently set up vehicles factory at Jabalpore has turned out shaktiman 3 ton trucks, Nissan 1 ton trucks, Jongas and spare manufactures worth Rs. 180 million.

The Hindustan Aeronautics accounted for about Rs. 7400 million in its production of the tiny, gnats, migs, maruts (HF 24) and Alouette helicoptors and other manufactures and spares. The Bharat Electronics, engaged in the manufacture of high grade professional electronics equipment for Defence forces such as radars, transmitters and trans-receivers, established record production, valued at Rs. 320 million. Besides, the Bharat Dynamics, achieved a production turnover of Rs. 11.2 million during 1971-72 by assembling of auto-tank missile from July, last year.

RICH MINERAL DEPOSITS IN BIHAR

Kyanite deposits in an area of 130 kilometers have been found in Singhbhum District of Bihar. The district having the largest reserves of Kyanite with 60 per cent of alumina is also rich in other minerals including limestone, bauxite, graphite, phosphorite, glass sands and ground water.

The Kyanite deposits are of non-blended type suitable for high class refractories capable of resisting temperature variations. The low grade kyanite reserves are also found in the District. Kyanite with 40 to 45 per cent alumina can be utilised in the ceramic and refractory industries.

Phosphatic rocks containing phosphorous have also been discovered in the Bhavanthpur area. The estimated reserve of phosphoratic rock is about 300 million tonnes down to a depth of 50 metres. The phosphorite can be used straightway as fertiliser. It is also suitable for the manufacture of phosphoric acid.

Exploration of large limestone deposits in Shahbad, Palamu and Singhbhoom district will facilitate setting up of 3 cement plants by the State Government. The annual capacity of each plant is estimated at 0.2 million tonnes. The deposits of lime stone and dolomite are estimated at over 55 million tonnes in Palamu district alone. Graphite reserves have been found only in Palamu district. The Geological Survey of India has estimated graphite reserves in Palamu district at over 1.6 million tonnes down to a workable depth of 20 metres. In the belt area 350,000 tonnes of graphite have been located.

Bauxite reserves, containing a high percentage of alumina with some titanium oxide, a little silica, ferric hydroxide have been found in Palamu and Ranchi districts. Bauxite is mostly used for manufacture of alluminium. A scheme for setting up an alluminium or alumina plant in Bihar is under progress.

Barytes, used in chemical industry has been found in Singhitali village of Palamu district. Beryl an atomic mineral which is used in the manufacture of a special type of steel alloy has been found in Dhangaon and Baruni areas.

Besides coking and non-coking coal reserves, estimated to be 11 million tonnes have also been found in the central part of the district. At present two collieries are in operation at Rajhara and Hunter (Barwadih).

Copper, lead, zinc, fire clay, garnets and diamonds are also found in substantial quantities in the district. Iron ore is found at Gore, Datam, Biwabatan, Rajbar and Bhalunagar. Magnetic deposits having 65 per cent iron contents have been found and the reserves have been found estimated at over 4,00,000 tonnes. Mica deposits have been found near Daltongang, Kini, Laligang, Khori and Bandua. In addition to this, mineral springs are found mostly along the east-west belt of Auranga, Hutar and Jaram rivers.

A chemical and petrological laboratory has been set up in Hazaribagh for analysing samples of mineral ores.

BRIEF PICTURE OF CASHEW INDUSTRY

India's cashew production is estimated at 175,000 tonnes during 1970 as compared to 154,000 tonnes in 1965 and 105,000 tonnes in 1960.

About 60,835 tonnes of cashew kernels were exported in 1971-72 at a value of Rs. 617.3 million. In the preceding year i.e. 1970-71 the export quantum was about 50,290 tonnes and the value was Rs. 520 million.

Import of raw cahsew nuts in 1971-72 were of the order of 169,770 tonnes valued at Rs. 279.0 million. In the earlier year the import quantity was 168,475 tonnes at a value of Rs. 292.5 million.

Import of raw cashew nuts was canalised through the Cashew Corporation of India Limited, a subsidiary of the State Trading Corporation. Effective from September 1, 1970 the import of raw cashew is allowed by the Cashew Corporation to the processing units on the basis of their past export performance.

A proposal is under consideration for starting packing of cashew kernels through the proposed joint venture STC (Far-East) at Hong Kong.

RECORD RICE PRODUCTION IN TAMIL NADU

India's food production during 1971 was recorded at 107.8 million tonnes as against 99.5 million tonnes during the preceding year registering about 8.3 million tonnes increase. Rice occupies an important place in the production of cereals. Out of the total production of cereals which was 96.24 million tonnes, rice production amounted to 42.45 million tonnes. Of the 101.45 million hectares of land under cereal group, the area under rice cultivation was 37.43 million hectares.

Tamil Nadu, one of the bumper rice crop producing states in India, has achieved a record output of rice at 5.4 million tonnes during 1971-72 as against its rice output of 5.3 million tonnes during the preceding year. In comparision to the all India average output of rice of 2721 tonnes per hectare, Tamil Nadu's per hectare output was recorded at 4337 tonnes. Tamil Nadu's target for 1972-73 has been fixed at 5.5 million tonnes.

NEW HOTEL PROJECTS FOR TOURIST DEVELOPMENT

To the existing capacity of 9945 hotel rooms in 183 approved hotels in India there will soon be an addition of 7675 rooms in 70 fresh hotel projects that are under various stages of construction.

Already two new hotels have come up recently under the auspices of the India Tourism Development Corporation - one at Bangalore and the other in New Delhi. The Corporation had started construction of a 100 room transit hotel at Calcutta airport as well as 40 beach cottage at Kovalam in Kerala. Complimentary to the efforts of the Corporation, M/s. Air India too entered the hotel industry and have an immediate proposal to construct a 350 room five-star beach hotel at Juhu and a 50 room transit hotel at the Bombay airport. Further ten youth hostels are under active consideration at focal points of tourist interest such as Jaipur, Bhopal and Trivandrum.

A total number of 300,995 tourists arrived in India during 1971 compared to 281,000 in the previous year.

In addition, introduction of Boeing 747 on some of M/s. Air India's international services was a significant development during 1971. Two Jambo aircrafts were already put into operation in 1971 and two more are expected to go on air soon.

HALDIA DOCK SYSTEM

The Haldia dock system is expected to be completed and commissioned by the end of 1973. The dock system which will have six berths is likely to cost about Rs. 740 million including the cost of a new esturian dredger. Six berths will include a coal berth, an ore berth, a fertiliser berth, a general caro cum container berth, a berth for handling heavy lifts and a jetty to handle salt. An oil jetty has already been commissioned.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

PROCESS FOR SILICON PHOTOVOLTAIC CELLS

A process to produce N on P type silicon solar cells has been developed by the Solidstate Physical Laboratory, New Delhi. Silicon photovoltaic cells are silicon P. N. junction devices that directly converts solar energy into useful electrical power. The developed N on P type silicon solar cells are substituted for the photovoltaic cells which are mostly imported in India.

The solar cells find a variety of applications in different fields. In the entertainment field, they are used as batteries for running transistor radios. They form an ideal source of power in satellites. They have been used as inexpensive and moderately sensitive light detectors. Solar cells with rechargeable nickel cadmium batteries form an ideal combination for unmanned relay stations in communication networks.

India's requirements of solar cells are estimated at about 10,000 cells per annum. About 1000 cells have been fabricated by the developed process on a laboratory scale.

Silicon slices form the main raw material required in the process. Besides this, chemicals like Kodak photoresist, acids, solvants etc. are required.

Items of equipment like diffusion furnace, vaccum coating unit, ultrasonic cleaner, vapor degreasing unit, microscope multimeter, V.T.V.M. varaics, voltage stabilisers, etc. are indigenously available. A few items of machinery are required to be imported.

TARTARIC ACID FROM TAMARIND LEAVES

A process for the manufacture of tartaric acid from tamarind leaves has been developed at the Regional Research Laboratory, Jorhat. The process is available with the National Research Development Corporation of India.

Tartaric acid is a very important chemical intermediate. It is used in textile and medicinal industries. At present, this chemical is imported in large quantity. The conventional process for the manufacture of tartaric acid in Western countries is as a by-product from the wine industry. Tamarind leaves are available in plenty in South India and they contain 8-13 per cent of tartaric acid. Tamarind also contains a similar amount.

The process developed by the Regional Research Laboratory, Jorhat consists of digestion of leaves under suitable conditions, precipitation of acid as calcium tartarate. The crystals are then broken down by sulphuric acid, decolorised with charcoal and recrystallised.

The total capital outlay for a plant capable of producing 100 tonnes per annum of tartaric acid is estimated at Rs. 1.35 million. The cost of production comes to approximately Rs. 11.67 per kg. against the market price of Rs. 17 to Rs. 20 per kg.

CARBAZOLE DIOXAZINE VIOLET PIGMENT BASE

A process for the manufacture of Carbazole Dioxazine Violet Pigment Base has been developed at the National Chemical Laboratory (NCL), Poona. The process is available with the National Research Development Corporation of India.

Carbazole Dioxazine Violet (CDV) is used for the preparation of a violet pigment which finds application mainly as a toner for phthalocyanine blue pigment. The entire requirements of CDV pigment or pigment base are met through imports. The Fourth Plant target for the pigment is estimated at about 12 tonnes per annum.

The NCL process for CDV pigment base has been worked out on 1 kg./batch of the finished product and conditions of reaction have been standardised.

INDIAN RAILWAYS

From small beginnings over a hundred years ago, Indian Railways have grown into a mighty system of progressive stages of development. Sinewed by over 59,000 route kilometres of railways, Indian railways constitute Asia's largest and the world's fourth largest system. The Railways in India are running about 10,800 trains daily, serving over 7,000 railways stations and covering distances aggregating 1.3 million kilometres per day-equivalent to 32 times the journey round the earth at the Equator.

The Indian Railways carried nearly 200 million tonnes of freight in 1971. The principal factor in the growth of this traffic has been the movement of bulk commodities like coal, iron and other ores, steel, cement, foodgrains, fertilisers and petroleum products. About 90 per cent of country's coal moves by rail. The steel industry depends entirely on rail transport for the movement of raw materials and finished products. Export traffic is largely rail-borne. Consumption of petroleum products in India has been constantly rising and a fleet of more than 25,000 special type tank wagons is in use for their transport.

At the dawn of independence, India inherited a railway system battered by World War II. Growing industrialisation during the Five Year Plans caused an additional strain on the transport capacity of the country. It was against this background that the Indian Railways launched upon a plan to rehabilitate and modernize their apparatus, equipment and expertise. An important step towards this direction was the setting up of three major Production Units by the Railways, viz. the Chittaranjan Locomotive Works (which initially produced steam locomotives and is now being utilised for the production of electric locomotives and diesel shunters), the Integral Coach Factory at Perambur, and the Diesel Locomotive Works at Varanasi. Besides, Railways also induced the development of wagon building industry.

Along with the modernisation of traction switching over from stream to dieselisation and electrification, the Indian Railways have put in service high capacity 4-axle wagon with a tare weight of 25 tonnes and carrying capacity of 55 to 65 tonnes, against the 22 tonnes capacity of conventional 2-axle wagons. Thes wagons are of a welded design and have much highe intensity of loading per foot thus enabling the running of heavier trains. In order to speed up the movement of heavy industrial and other freight traffic, Railways have also undertaken extensive track and signalling improvements and introduced Super Express goods trains on various trunk routes.

Indian Railway's efforts at indigenisation of their equipment have led to the development of many industries for the manufacture of intricate and sophisticated components. The stress on modernisation has broadened the industrial base of the country. The Railways imported as much as 30 per cent of its purchases in 1951-52, amounting to Rs. 970 million. The imported content of railway stores has, however, been progressively reduced in order to save foreign exchange and dependence on imported items. While the total value of stores, purchased in 1967-68 rose by 200 per cent to Rs. 3210 million, the foreign exchange content came down to only 18 per cent. There was further improvement in 1969-70 when Rs. 33,165 million worth of stores were purchased of which imported articles accounted for only six per cent.

India is now more or less self-sufficient in the manufacture of locomotives, passenger coaches, freight wagons of all types, train lighting, equipment, mechanical signalling, vacuum brake equipment, track materials and other allied items. The Indian Railways are also manufacturing diesel and electric locomotives.

Rolling Stock

The Chittaranjan Locomotive Works which started production in the end of 1950 has till the end of 1970-71 turned out 2325 steam locomotives, 298 electric locomotives (274 AC and 24 DC), 81 diesel locomotives and 2,280 boilers. During 1970-71 alone the factory manufactured 33 steam, 50 electric and 40 diesel engines and 35 boilers. After completion of the orders in hand for steam locomotives the workshop proposes to switch over to the exclusive production of diesel and electric locomotives. By way of import substitution the factory has saved well over Rs. 1200 million in foreign exchange.

The Chittaranjan Locomotive Works is also geared up to manufacture electrical equipment like traction motors, silicon rectifiers, smoothing reactors, inductive sheets, shunting contactors, reservers, master controllers etc.

The steel foundry section of Chittaranjan Locomotive Works set up in 1963 manufactures castings for diesel and electric locos, such as traction motor frames, Jacquimire drive gear etc. In addition, such exclusive items as manganese steel points and crossings for railways are also turned out.

To meet the growing need for diesel hydraulic shunters from public, sector plants and parts, the factory has added this item, to their production line. It has a capacity to produce 42 broad gauge and 5 narrow gauge hydraulic shunting locomotives.

The Diesel Locomotive Works at Varanasi are manufacturing both broad gauge and metre gauge locomotives. During 1971 the workshop manufactured 105 locomotives consisting of 65 broad gauge and 40 metre gauge engines. This was a 54 per cent increase in production as compared to the previous year's output of 68 locomotives.

With this, the factory has turned out 503 diesel locomotives in the past eight years. Of these 426 were broadgauge and 77 metre gauge locomotives. By way of import substitution the factory has so for saved nearly Rs. 1500 million in foreign exchange. It is anticipated that in 1972-73, 135 locomotives and in 1978-74, 160 locomotives will be manufactured by the Varanasi Workshop. The indigenous content in the diesel locomotives has also been increasing year after year and it is now at 87 per cent.

At present passenger coaches are manufactured by two public sector units, some railway workshops and a private sector unit. The Integral Coach Factory at Madras is the biggest coach manufacturing unit in the world. The present level of production is nearly 700 coaches per annum and the project to step up the production to 750 coaches per annum has already been taken up.

The coach unit in a decade and a half (October 1955 to March 1971) has put out 8,033 passenger coaches including electric multiple unit stock. The number of shells furnished during the period stood at 6053. In 1970-71 alone the factory manufactured 660 coaches and furnished 635 shells. The production range of the Madras unit includes, 3 tier and 2 tier sleeper coaches, electric multiple units, diesel cars and air conditioned de lux coaches. As a result of adopting the most modern designs, the all steel welded coaches of tubular design with anti-telescopic ends ensures maximum safety.

The wagon building industry in India is well established. With 16 units in the line, the licensed capacity for the manufacture of railway wagons is 40,869 numbers in terms of fourwheelers. The installed capacity is of the order of 32,319 numbers and the actual production in 1971 was around 7,760 numbers. The Indian industry produces various types of wagons including hopper wagons, tank wagons, covered wagons, petrol wagons, cattle wagons, dumper wagons, G.A.S. and E.A.S. wagons etc.

Railway Equipment

The Indian industries turn out a wide variety of railway equipment such as rails, sleepers, fresh plates, points and crossings, stretches bars, taper, keys, loose jaws, fish bolts and nuts, dogspikes, round spikes, mechanical and electrical signalling equipment, electric point, electric point machines, steel castings and forgings etc. During 1970-71 alone as much as 385,000 tonnes of rails were manufactured in the country.

The rapid modernisation of the Indian railways has created a large demand for a variety of railway equipment. The manufacturing units are progressively adding newer items to their production stream. For instance the Heavy Electricals factory at Bhopal produced for the first in the country sophisticated controls for DC locomotives. Other types of railway equipment in the production stream of the Bhopal factory are traction motors of various ratings, traction transformers, rectifiers and traction control gear comprising individual items like pantographs, master controllers, reversers, contactors, relays, resistors etc. Microwave communication equipment are also being added to the indigenous production. The Indian Telephone Industries have already taken up the manufacture of multiplexing equipment.

Research and Development

With the increased operational and developmental activities the Indian railways have established a sound

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basis for research and design development. The Research, Designs and Standards Organisation (RDSO) set up in 1957 amalgamating the then existing railway research units has played a pivotal role in evolving new designs and standards of railway equipment. The research and development activities of the organisation cover such fields as metallurgical and chemical engineering, rolling stock, permanent way signalling and telecommunication engineering, traction installation etc. Besides research and design development, the RDSO is in a position to render consultancy services.

Export Trade

India exports a wide variety of railway equipment and rolling stock. Particularly the wagon building industry has made a good headway in international markets. Ever since Indian manufacturers secured a major export contract for supply of 480 railway wagons to East African Railways in the year 1966, export performance in the line has been on the increase. A large number of export orders have been netted from several countries far and near. In 1970-71 the export value stood at Rs. 21.10 million. In the ten months of 1971-72 (April 1971-January 1972) the value of wagons export was more than Rs. 56.9 million. The main markets that have already placed sizeable orders on the wagon industry in India are Hungary, Poland, East Africa, Burma, Ceylon, South Korea and Sudan.

The State Trading Corporation secured the biggest ever offer in 1970 for the supply of 3600 wagons to Yugoslavia valued at about Rs. 380 million.

At the end of April 1972, the total value of orders for wagons exports on hand were of the approximate value of Rs. 560 million. The export target for this item for 1972-73 and 1973-74 have been fixed respectively at Rs. 680 million and Rs. 840 million.

Currently the pending orders for supply of wagons on hand are from Yugoslavia, Hungary, Ceylon, Iran, Iraq, Sudan, Poland and East Africa. It is expected that many more developing countries particularly in South East Asia and West Asia and Africa will soon place further orders for Indian made wagons and equipment. Wagon building industry being essentially a labour intensive one, the developed markets are steadily vacating this field of production.

Similarly the Integral Coach Factory, Madras has also secured and executed a number of overseas orders for railway coaches.

In addition to rolling stock, rails and sleepers and other track materials are exported from the country in large quantities. During 1970-71 alone rails and sleepers had an export earning of neary Rs. 65.25 million. Even in the first eight months of 1971-72 (April-November 1971) exports of these items brought in Rs. 76.80 million.

Besides direct exports, the Indian Raliways have undertaken consultancy services in the field of railway working in various countries like Iran, Thailand, Philippines, Iraq, Syria and Jordan. □

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ANOTHER TURNKEY CONTRACT ABROAD

The Indian Consortium for Power Projects, Chandralok Building, Janpath, New Delhi-1 has bagged one more export order this time from the Tana River Development Co. Ltd., Kenya. The order is for supply, erection and commissioning of all the switchgear and ancillaries for the three substations at Juja Road, Kindaruma and Kamburu, being installed under the Kamburu Hydro-Electric Project, financed by the World Bank.

This order, valued at over Rs. 6 million is the fourth export order won by the Consortium in the last two years and has been won against keen competition from such firms of international standing as Cogelex, Merlin Gerin-both of France, Brown Boveri of Switzerland, Sumitomo Shoji of Japan, Sadeline Cogepi of Italy and GEC of U.K. Of the four export contracts, three are from projects financed by the World Bank. The first one valued at about Rs. 1.5 million was for the Tedzani Falls Hydro-Electric Scheme in Malawi, and the second valued at about Rs. 2.8 million was for the Great Ruaha Hydro Power Project in Tanzania. The total value of the export contracts won by Consortium now exceeds Rs. 11 million.

In the latest contract from Tana River Development Company, the Consortium has coordinated equipment from over 16 different manufacturers (of which, one manufacturer was mentioned in detail in the lead story of the previous issue of this weekly), including some overseas, and offered it as a turnkey job, and the execution of this contract will involve coordinating the technical ratings and specifications of equipment from all these manufacturers and several hundred drawings for the project.

A very tight completion schedule involving two stages, one by September, 1973 and all the rest of the works by January, 1974 has been accepted.

The performance of the Consortium in the two preceding contracts has been satisfactory. The two giant 50 KVA transformers of the Tanzanian contract have just been shipped abroad on the motor ship Toronto and are on their way to Dar-Es-Salaam. These are the largest ever transformers to be shipped abroad from India and also to be received in East Africa. These have been manufactured by M/s. Transformers & Electrical (Kerala) Ltd., Cochin, and have been shipped ahead of schedule. On account of the heavy weight of 60 tonne packages to be handled, transport, especially at the other end in Tanzania, posed several problems which have been successfully overcome. Road trailers for transporting the transformers to site had to be arranged from Nairobi in Kenya, 1000 km. away.

Another set of large transformers, i.e. two of 11.5 MVA and one of 20 KVA of the Malawi contract has been manufactured by M/s. Heavy Electricals (India) Ltd., Bhopal and after satisfactory tests, is ready for shipment, considerably ahead of schedule.

The Indian Consortium for Power Projects was set up under the aegis of the Ministry of Industrial Development with the participation of Bharat Heavy Electricals, Heavy Electricals, Instrumentation Ltd., Mining & Allied Machinery Corporation, and Triveni Structurals. It has won these four orders within the two years of its operation which augurs well for India's efforts to export equipment for power projects.

OIL CIRCUIT BREAKERS TO BANGLA DESH

M/s. Heavy Electricals factory at Bhopal have undertaken to supply two numbers of Oil Circuit breakers, each of 33,000 volts capacity for Bangla Desh. The export order from Bangla Desh will be executed through M/s. Project & Equipment Corporation, New Delhi.

The total value of orders for various equipment including for Bangla Desh booked by the factory during the month of April 1972 comes to Rs. 61.5 million.

Major orders booked by the Bhopal factory include Squirrel Cage motors for Fertilizer Corporation of India, Sindri and Maharashtra State Electrcity Board, Switchgear for Haryana State Electricity Board, Transformers for Electricity Boards of Gujarat and Assam, Furnace Transformer for Alloy Steel plant, Durgapur, sets of Electric Traction Equipment for Indian Railways and spare Electric Motors and Controls for Kufa Cement in Iraq.

EXPORT TRADE IN CEMENT

Cement export during 1970-71 was valued a Rs. 20.3 million. In the first eight months of 1971-7 (April-November, 1971), the value was Rs. 14.6 million. Portland grey cement is the major item c export. Some quantities of portland white an hydraulic cement too are exported. Nepal, Muscat Ceylon and Saudi Arabia have been the majo importers of portland grey.

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M/s. Shree Digvijay Cement Company Limited, Shree Niwas House, Waudby Road, Fort, Bombay-1 exported 117,840 tonnes of cement during 1971. The company's share in the county's export trade of cement is estimated at about 54 per cent. The company's cement production in the year was 776,000 tonnes and that of asbestos was 43,930 tonnes.

The country's total capacity of cement production by the end of 1970 was 17.36 million tonnes contributed by 50 units. A further capacity of 0.83 million tonnes is expected to have materialised in the following year. Aside from the production of ordinary portland cement, the manufacturing units engaged in the line have taken steps to diversify their production activity for developing the manufacture of items such as blast furnace slag cement, pozzolane cement, white cement, oil well cement and rapid hardening cement. The production of asbestos cement production in India including roofing sheets and pipes reached a figure of 36,000 tonnes. There has been an improvement in the production of pressure pipes.

CABLES ON EXPORT FRONT

Electric wires and cables fetched Rs. 206.24 million in foreign exchange during 1970-71. Of this, insulated cables and wires were exported in the same year to the tune of Rs. 27.05 million. Sharp upswing in the export sales of cables is noticeable in the last few months particularly in respect of insulated wire, enamelled copper winding wire, plastic insulated wire, plastic insulated cables and fluxes.

M/s. Industrial Cables India Limited, Jeevan Tara Building, Parliament Street, New Delhi-1 have registered good export performance in the year ended October 1971. Notwithstanding international competition, the firm fetched record export earnings amounting to Rs. 13.83 million as compared to Rs. 9.2 million in 1969-70. One of the leading exporters in underground paper insulated cables, the company bagged a Certificate of Merit for outstanding export performance last year. They have plans to set up a steel wire manufacturing unit, AAC and ACSR conductors, grooved contact wires (trolly wires) and XLP cables as also aluminium ropes.

DETERGENT EXPORTS

Synthetic detergents made in India have been active in the export market. While in the full year of 1970-71, the export value was of the order of Rs. 2.83 million, even during the first eight months of 1971-72 (April-November 1971) exports rose to as much as Rs. 4.19 million. Larger intake of U.S.S.R. was the major reason for the export improvement. The Soviet Union imported worth Rs. 2.34 million during 1970-71 while its intake in the first eight months of 1971-72 was as much as Rs. 3.64 million.

M/s. Ultra Marine and Pigments exported about 10 per cent of their production in 1971 earning foreign exchange worth Rs. 0.5 million. The company has on hand export orders worth Rs. 0.55 million to be executed before the end of September in the current year.

M/s. Hindustan Lever Limited, Hindustan Lever House, Backbay Reclamation, Bombay whose overall export value rose to Rs. 55.2 million during 1971 has had an important share in improving Indian exports of synthetic detergents to the Soviet market.

EXPORT OF AUTOMOTIVE TYRES

The automobile tyres and tubes constitute prominent segment of India's export trade of engineering products. About Rs. 55 million worth of tyres and tubes were exported during 1970-71. In the first eight months of 1971 - 72 (April - November 1971) the export was of the order of Rs. 43.4 million. Yugoslavia was the major importer of tyres followed by Burma, Czechoslovakia, Sudan, U.S.S.R and U.S.A.

M/s. CEAT Tyres of India Limited, Bhandup, Bombay-78 exported automotive tyres to the tune of Rs. 21 million during 1971. That year the total export value of tyres from India was estimated at about Rs. 71 million.

Another firm M/s. Dunlop India Limited, Dunlop House, 57-B, Free School Street, Calcutta-16 exported Rs. 30.34 million worth during 1971, the details of which appeared in this weekly dated May 13, 1972.

The present licensed capacity in the automotive tyre industry is about 5.2 million units. The production during the year reached 4.64 million units, an increase of 620,000 units over that of 1970. The output in 1972 is estimated to reach 5.5 million units.

ORGANIC CHEMICAL EXPORTS IMPROVE

In the first eight months of 1971-72 (April-November, 71) the export value of chemicals, elements and compounds stood at Rs. 51.15 million as against Rs. 42.31 million in the corresponding period of 1970-71. The share of organic chemicals was as much as Rs. 24.03 million as against Rs. 17.25 million. During the full year of 1970-71, the value of organic chemical exports was of the order of Rs. 33.11 million out of total exports of chemical elements and compounds at Rs. 78.39 million in that year.

The major products in the organic chemicals group that have been active in the export business are undenatured ethyl alcohol, anthroquinone, benzanthrone, beta ionone, betahydroxynephthalic acid, oxalic acid etc.

M/s. Warner-Hindustan Ltd., Savoy Chambers, Wallace Street, Bombay's exports of specialist basic organic chemicals (alpha picoline, pyridine and bases) reached 203 tonnes in the last year. Their chemicals plant in Hyderabad, is designed to meet a good portion of domestic demand for these basic chemicals, imports of which have been on an average at a cost of Rs. one million a year.

EXPORT ORDER FOR AUTOMATIC LOOMS

Textile machinery is an important area of India's export growth. The machinery to the tune of Rs. 53 million was exported during 1970-71.

M/s. National Machinery Manufacturers Limited have recently received an order from Sudan worth Rs. 2.5 million for the supply of automatic looms.

The company has already added draw frame to its production range during 1971 and expects to add jute, canvas, corduroy and drop box automatic looms to its manufacturing range in the near future.

INSTANT TEA TO WORLD MARKETS

Indian instant tea has been well received in the world market and demand for the same has been on the rise. Cold water soluble instant tea is also produced in India and exported.

The cold water soluble instant tea is produced by M/s. Tata Finlay Ltd., at Munnar in Kerala State and the hot water soluble tea by M/s. Food Specialists Limited, Cholady, Tamil Nadu, directly from green tea leaf as against black tea used for the purpose in U.S.A. The annual installed capacity of these factories is 1.5 million lbs. and 2.4 million lbs respectively. The entire quantity of their production is earmarked for export. Indian instant tea is "cent per cent instant" and does not contain any food additives.

Instant tea production in 1971 was of the order of 2,55,019 kg. Export trade in the line during the year fetched nearly Rs. 8 million. Researches for development of other suitable methods of manufacture have been carried out at the Central Food Technological Research Institute, Mysore as also at Calcutta University under schemes organised by Tea Board, Calcutta.

EXPORT PERFORMANCE AND POTENTIAL

EEC AND INDIAN EXPORTS

"Expansion of European Economic Community is seriously handicapping developing countries and stagnates their markets" stated Mr. H. Lal, Secretary, Ministry of Foreign Trade in an address to the UNCTAD III. Speaking on the resolution calling for bigger share of trade to be allocated to the third world countries, the Foreign Trade Secretary said that with Britain's entry into the ECM, countries like India would be no longer entitled to Commonwealth Preferences that they had been enjoying. The importance of these Preferences to a country like India could not be under-estimated as U.K. had been one of India's principal trading partners. India could not subscribe to the view that the loss of Commonwealth Preferences is automatically compensated for by the General System of Preferences (GSP) of the enlarged community. The principle of GSP was accepted by developed countries. Its benefits had already been whittled down by progressive economic integration among the group of powerful industrialised countries. The wall called common external tariff has been erected against all outsiders who had accordingly been placed in an automatically disadvantageous position vis-a-vis industrialised members of the community.

"Meanwhile the Community had grown in wealth and prosperity to such an extent that some neighbouring countries who are also highly industrialised felt that it was in their interest to join the club. The enlarged community with membership of ten would control more than 40 per cent of global trade."

Mr. Lal urged the developed countries that are members or expect to become members to the regional economic grouping to follow certain basic criteria so that the interests of less developed countries would adequately be taken into account. The criteria should be that : (a) when regional groupings are strengthened or enlarged or when new ones are established, it should be ensured that there would be no adverse effects on the economies of developing countries, (b) Such groupings should adopt time-bound programmes for providing adequate and improved access for products of all developing countries, (c) in the field of trade, non-discriminatory policy should be pursued with respect to all developing countries, (d) in the provision of financial assistance all developing countries should be given equitable consideration and (e) serious consideration should be given to devising ways and means for giving developing countries adequate share of market *inter alia* through implementation of progressive scheme of adjustment assistance.

INCREASE IN NON-TRADITIONAL EXPORTS

India's exports of major non-traditional products showed an increase of over 30 per cent in 1970-71 over 1968-69. As a percentage of India's overall exports, these exports increased from 36 per cent in 1968-69 to 41.6 per cent in 1970-71. In the first eight months of 1971-72 i.e. April-November 1971 the share was 38.4 per cent.

Engineering goods occupied a pre-eminent position in the country's non-traditional exports. During 1970-71, the value of engineering products exports was of the order of Rs. 1165 million of which metal manufactures accounted for Rs. 388 million, transport equipment Rs. 300 million, non-electrical machinery Rs. 281 million and electic machinery Rs. 161 million. For the Fourth Five Year Plan, the export target in engineering goods was placed at Rs. 1900 million by the end of 1973-74. During 1971-72 the estimated value of these exports was Rs. 1300 million.

The increase in the export value of engineering goods in 1970-71 over 1968-69 was of the order of 72.7 per cent. For the period April-November 1971, these exports were valued at Rs. 762 million being higher by nearly 14 per cent as compared to the exports in the corresponding period of 1970. The slow growth rate in the recent period has been attributed to the reduction in intake of certain markerts abroad such as Arab Republic of Egypt because of payment difficulties; high shipping freight rates, lack of shipping space, dislocation of shipping in December 1971, fluctuation in exchange rates in the last few months as also shortage of steel and higher cost of other raw materials. In view of the special measures being taken to increase the availability of steel etc. the exports in the line were expected to increase at a faster rate.

Iron ore constitutes another important non-traditional item of India's exports, having fetched in foreign exchange of Rs. 1173 million during 1970-71. The export target for 1973-74 is placed at Rs. 1550 million. During 1971-72 there has been some decline in the growth rate owing to decline in demand, and the recessionary conditions in steel industry of Japan which has been India's major market. Efforts are being made to find new markets, particularly in West Europe so as to diversify the export trade in the line and reduce dependence on an individual country.

Among the growth-points of non-traditional export trade, iron and steel products were exported to the tune of Rs. 792.3 million during 1970-71. Handicrafts exports fetched Rs. 698.6 million of which hand-made carpets accounted for Rs. 105.7 million. Leather and leather manufactures excluding raw hides and skins, but including footwear of leather and canvas were exported to a level of Rs. 834.3 million in 1970-71. The export value of chemicals and allied products in the same period was Rs. 293.3 million, sugar Rs. 275.7 million; wood, lumber and cork manufactures Rs. 76.2 million; mineral fuels, lubricants and related materials Rs. 125.8 million, fish and fish preparations Rs. 312.8 million, rubber manufactures Rs. 70.5 million, paper and paperboard Rs. 54.1 million, plastic and plastic manufactures Rs. 49.8 million, ferro-manganese and ferro-alloys Rs. 114 million, fabrics of art silk and synthetic fibre and spunglass Rs. 52.4 million, handloom silk fabrics Rs. 38.3 million.

Barring a few items like iron and steel, mineral fuels, rubber goods, paper and paperboard, ferro-manganese, ferro alloys and handloom silk fabrics, the rest of the above items have witnessed export upsurge during the first three quartres of 1971-72, as compared to the corresponding period of the preceding year. The future of India's export trade depends on the rising contribution of non-traditional exports, whose performance is indeed encouraging.

UPTREND IN ELECTRIC FAN EXPORTS

Export value of electric fans including parts during 1971-72 is of an estimated order of Rs. 19.7 million. This is a sizeable improvement in the export value for the preceding year at Rs. 14.4 million.

The electric fan industy in India has been contributing well to the country's foreign exchange earnings for many years in the past. Ceiling fans constitute the foremost category accounting for more than 85 per cent of total fan exports from India. Pedestal fans, table fans and railway carriage fans are among the other types generally exported. Iran, Iraq, Kuwait, Nigeria, Saudi Arabia, Sudan and Arab Republic of Egypt are the major markets accounting for about 35 per cent of India's export of fans.

Aside from physical exports in the line, the Indian fan industry have already exported technical know-how to countries like Ceylon, Iraq, Nigeria for fan manufacture.

With about 25 units in the large-scale sector and about 40 units in the small-scale sector engaged in the production, annual capacity of the fan industry on single shift basis is 1.82 million numbers. In terms of production the fan industry has made good headway and the output has in fact increased ten fold since 1951-52. The production in 1950-51 was only 212,000 numbers. Within a decade in 1960-61, the production touched 1.01 million numbers. In 1970-71 the output further increased to 1.62 million numbers. The estimated production in 1971-72 is 2 million numbers.

Electric fans constitute one of the first industries which has long been brought under the purview of standardization policy of the Goverment of India. Indian Standard of ceiling fans was issued as early as 1951 since when standards for table, pedestal, air circulator, axial flow, propeller type, roof extractor units, hot air, centrifugal fans etc. were announced. Indian Standards for industrial cooling, railway carriage and high breeze fans are under various stages of development.

Most of the materials used in the manufacture of fans are available indigenously in India. Materials like enamelled wires, CRGO steel, capacitor, etc. are available in sufficient quantities. The dynamo grade hot rolled steel sheets are manufactured by domestic steel plants. Improvement in the development of fans has been made with the use of electrical steel and super enamelled winding wires instead of mild steel sheets and covered wires used earlier. The use of capacitors has also helped in improving the power factor. The fan industry in India provides a good example of success in import substitution. Aluminuim rotors have been substituted for copper rotors, by most of the fan manufacturing units. Aluminium and plastic fan blades, are being used increasingly in place of steel blades. The substitution of copper and special steel by aluminium has resulted in substantial saving of foreign exchange.

QUALITY CONTROL FOR ENGINEERING EXPORTS

Exports of engineering products have been rising during the past few years. The export value was

Rs. 850 million during 1968-69, Rs. 1065 million in 1969-70 and Rs. 1166 million in 1970-71. In 1971-72 the estimated value is of the order of Rs. 1300 million. The major items coming up for export in the line include auto and auto parts, MS pipes and fittings, electric wires and cables, jute textile and knitting machinery, bicycles and bicycle parts, machine tools, transmission line towers, electric fans and parts, diesel engines and parts. An important development in the context of engineering goods is the growing volume of overseas supplies by way of high value contracts and turnkey projects. The main supplies of such industries are railway wagons and coaches, transmission line towers and jeeps, power cables and cement plants, water pumping plants and textile machinery etc.

To sustain and even improve the rate of growth in the export earnings of engineering products, strict quality control measures are enforced. Fiftyeight engineering items including sewing machines, bicycles and bicycle parts have so far been covered under compulsory quality control and preshipment inspection scheme. Such goods are allowed to be exported only on the basis of specifications recognised by the Government of India which includes the buyer's specifications, subject to minimum standards prescribed in this behalf.

In respect of sewing machines, for instance, the industry is being developed exclusively for meeting the exacting designs, specifications and quality requirements in the overseas markets. Sewing machines have proved to be one of the most important items among engineering goods manufactured in India with an estimated export value of about Rs. 4.5 million during 1971 72. Bicycles and bicycle parts, constitute another industry which has been significantly developed in the engineering field. The export earnings of bicycles and accessories during 1971-72 are estimated to have reached a level of Rs. 85 million. These items were covered under Compulsory Quality Control and Preshipment Inspection Scheme effective from October 1967 and February 1968 respectively. Likewise 56 more engineering products have also been brought under the purview of the scheme.

To advise Government regarding measures for enforcing quality control and inspection in relation to commodities intended for export, an Export Inspection Council has been set up with branches at suitable manufacturing/trading points. A number of inspection agencies has been recognised for inspection and testing of exportable commodities in accordance with the standards and specifications laid down for the commodity concerned or in accordance with the stipulations of foreign buyers. In the light of experience gained in the actual working of these schemes a constant review of the standards and procedure of inspection enforced is undertaken to keep them in line with the changing and sophisticated requirements of consumers abroad.

The other engineering products brought under the purview of Compulsory Quality Control and Pre-shipment Inspection Scheme are Cast Iron manhole covers and frames, Cast iron soil pipes and fittings, brass utensils, bread knives, butcher's knives, carving knives, cook's knives, copper utensils, drawer locks, cupboard locks and box locks, forks (table, fish, pastry, and serving) made of brass nickel-silver and stainless steel, galvanised steel barbed wire for fencing, hinges, mild steel buckets for general use, mild steel sliding door bolts for use with padlocks, mild steel wire nails, mortice locks (vertical type), oil pressure lanterns, oil pressure stoves, padlocks, pocket knives, scissors, spoons made of stainless steel, brass and nickel silver, table knives, dessert knives and fuirt knives, tower bolts, umbrellas, wire gauze for general purposes, enamelware, flash lights, mild steel and medium tensile stress bars and hard-drawn steel wire for concrete reinforcement, carbon steel sheets, cold rolled, structural steel, high tensile, carbon steel sheet and strip, hot rolled, rivet bars for structural purposes, structural steel (standard quality), steel sheets galvanised (plain and corrugated), iron and steel wire, galvanised for telegraph and telephone purposes, mild steel wire, high tensile rivet bars for structural purposes, carbon steel bars, blooms and slabs for forgings, structural steel (ordinary quality) structural steel (fusion welding quality), carbon steel bars for production of machine parts for general engineering, carbon steel billets for re-rolling into structural steel (ordinary quality), carbon steel billets for re-rolling into structural steel (standard quaiity), electric cables and conductnrs, automobile spares, components and a accessories, diesel engines, electric fans, small tools and hand tools, power driven pumps, expanded metal steel sheets, stainless steel utensils, steel trunks, aluminium utensils.

SUGAR MILL MACHINERY AND EXPORT PROSPECT

Although India is a new entrant in the export field of sugar mill machinery and has to face competition from established exporters like Japan, the country has been able to make a mark as an important exporter in the line. In 1971-72 (upto February 1972) the export value of sugar mill machinery was of the order of Rs. 9.7 million. Ceylon happens to be the most important purchaser at an intake value of Rs. one million. Kenya, Nigeria, Liberia, Uganda, Sudan, Tanzania, Madagascar, Guatemala, Haithi and Fiji were the other major importers in the line. Aside from physical exports, the sugar mill machinery industry in India is able to offer technical know-how for joint ventures abroad as well as to successfully participate in global tenders. Production of sugar mill machinery rose from Rs. 2 million in 1955-56 to Rs. 57 million in 1969-70. A large numbar of units is under various stages of completion.

The sugar mill machinery industry in India accept orders for specific items of machinery as well as for complete factories on turnkey basis wherein the following services are offered :

(a) preparation of feasibility report, consultancy on engine ring, civil works, on land survey, etc., (b) supply of complete plant and machinery including factory buildings and auxiliary items such as workshop, water supply and water treatment plants, stores and service garage for vehicles and tractors etc., (c) erection and commissioning of the plant, (d) consultancy services on post commissioning factory management and (e) training of overseas personnel.

POWER STATION EQUIPMENT AND EXPORT EFFORT

From a modest beginning, the power station equipment industry has grown to a significant size in the last two decades. Before the era of planning, though the country was experienced in the operation and maintenance of high rate electrical equipment, the manufacture was practically negligible. Today most of the general purpose equipment and even high rated equipment can be produced in all fields of electrical engineering.

Electric motors industry, for instance, is manufacturing motors to cater to a large variety of needs up to 1500 h. p. and supply D. C. general duty and heavy duty motors up to 5000 KVA. Capacity exists in the country for the manufacture of steam generators and turbines of 100 to 200 Mega watts. Transformers up to 200 KV are manufactured and there are even plans to expand higher range of manufacture up to 400 KVA. Substantial capacity exists to produce motor control gears, circuit breakers, capacitors, condensors, switches, switch fuses of varying ranges and capacity. There are 27 units in the organised sector manufacturing aluminium condensors with an annual capacity of 103,000 tonnes besides a number of units in the small-scale sector with an estimated capacity of 25,000 tonnes per annum. A large variety of power cables and wires, feeder wires, grooved contact wires, over head conductors of copper and alloy including catenary wires, bare copper and cadium-copper conductors, under ground cables of paper insulated, lead covered and armoured, for both telephone and power, are manufactured in the country.

The power station equipment industry has made substantial contribution to the export trade during the last few years. In addition to supplying equipment as such, the manufactures have undertaken power station jobs on turnkey basis. They have not only supplied structurals, transformers, cables, fittings etc. but have also installed and commissioned plants. Power station equipment like structurals, transmission line towers, wires and cables, electric motors and fittings contributed roughly 23 per cent of the total export of engineering goods during 1970-71 at Rs. 1166 million.

M/s. Bharat Heavy Electricals Ltd., Tiruchirapally have secured orders from Malaysia for supply of three and two high pressure thermal boilers respectively on turnkey basis. These projects have been secured against international competition and are at various stages of completion. M/s. Heavy Electricals, Bhopal have also secured against global tenders a major export order for power transmission worth Rs. 7.5 million from the National Electricity Board of Malaysia. This order is the largest of its kind ever placed on India for supply of power transformers and also for biggest ratings of transformers so far exported by the country.

EXPORT PERFORMANCE OF HANDICRAFTS

The estimated value of handicraft exports during 1971-72 is of the order of Rs. 803 million, which was more or less at the same level in the preceding year. However, compared to the previous year, export trade during 1971-72 showed improvement for items like carpets, rugs and druggets including namdahs, art metal ware, woodware and embroidered goods.

The export value of precious, semi-precious and synthetic stones stood at Rs. 418.8 million in 1970-71. Woollen carpets, rugs and druggets earned about Rs. 109 million, artmetalware Rs. 65 million, hand-printed textiles Rs. 75 million, woodwares Rs. 29.4 million, imitation jewellery Rs. 19.6 million, zari Rs. 10.32 million, cotton carpets, rugs and druggets Rs. 9.5 million, embroidered goods Rs. 8.5 million, artwares Rs. 2 million and ivory products Rs. 1.85 miilion.

MARINE PRODUCT EXPORTS EXCEED TARGET

The year 1971-72 was a record year for the export of marine products. Export earnings touched an all-time high of Rs. 444.5 million an increase of Rs. 94.7 million over the exports in the previous year and an improvment by Rs. 45.5 million on the export target fixed for the year. The increase works out to 27 per cent. It is of significance that this improvement was achieved in spite of the slight quantitative decline in exports. The total quantity exported was 35,523 tonnes which was 359 tonnes less than the exports in the previous year.

Frozen shrimp which continued to be the major export item, recorded even quantitative improvement and contributed to the export of Rs. 370 million i.e. 83.28 per cent. The other major items of export were canned shrimp, dried fish, frozen lobster tails and frozen froglegs of which improvement was recorded only in the case of frozen lobster tails.

The substantial improvement in the export earnings registered during the year was mainly due to higher price realisation for frozen shrimp and greater diversion to the Japanese market.

Japan now occupies the foremost place among the markets for marine products. Also, for the first time, India ranked first among over sixty countries supplying shrimp to the Japanese market. During the year under review, about 52 per cent of the total exports of marine products and 63 per cent of frozen shrimp exports were to Japan. The other important markets in the order of importance were: U.S.A., Ceylon, Australia, U. K., France, Demark, Singapore, Belgium, West Germany etc. Some of the other highlights of the performance during the year were: a three-fold increase in the frozen shrimp export to Canada; further improvement in the export of frozen shrimp to West European countries, and the introduction for the first time, of Indian froglegs on a commercial scale into the Canadian market.

Accordining to the latest statistics of the F.A.O. of the United Nations, India is the largest shrimp producing country in the world.

TEXTILE EXPORTS TO SOVIET UNION

The Soviet Union has recently emerged as one of the major buyers of Indian cotton textiles. Its share from Rs. 45.9 million in 1965 had gone up to Rs. 168.8 million in 1970.

The exports to the Soviet Union move under bilateral agreements signed from time to time. The last such agreement which was signed in December 1970 and is valid for five years envisages export of various categories of cotton textiles.

Pursuant to the agreement signed between India and the Soviet Union in December 1970 envisaging exploration of new avenues in industrial cooperation, negotiations were held in respect of commercial cooperation for cotton textiles. The negotiations envisaged that the Soviet Union would supply to India approximately 20,000 tonnes of Russian cotton for a period of four years from 1972 and India would supply a proportionate quantity of cotton textiles so that India can receive conversion charges in the net. For 1972 it was envisaged that India would supply 126 million metres of farbics and 5 million pieces of towels against Soviet supply of 20,000 tonnes of cotton of staple length varieties, namely, 31/32 M.M., 37/38 MM. By way of conversion charges India would be receiving about Rs. 166 million in the year 1972.

Considering the large quantities involved for export to the Soviet Union, their buying organisation V/O EXPORTJION have sent a delegation to India to select the mills that would undertake the processing of Soviet cotton, under the cotton deal. The trade delegation which visited India in March 1972 placed orders for 124.8 million metres of different types of fabrics and 100,000 dozens of handkerchiefs valued at Rs. 34.27 million. The fabrics to be exported to the Soviet Union would include 4.06 million metres of printed furnishing, 2.50 million metres of printed poplin, 2.20 million metres of dyed poplin, 1.50 million metres of printed sateen, 1.00 million metres of dyed sateen and 1.22 million metres of kitchen towelling.

QUALITY CONTROL FOR COIR YARN

The Scheme for Compulsory Quality Control and Preshipment Inspection of non-baled coir yarn is to come into effect from June 3, 1972.

A voluntary preshipment inspection for aluminium foils used for wrapping cigarettes is being undertaken by the Export Inspection Council, Cacutta.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

ZERO REACTOR GOES ON STREAM

A Zero Energy Fast Reactor was commissioned at the Bhabha Atomic Research Centre, Trombay, near Bombay recently. The commissioning of this reactor which was designed, developed and constructed by a team of BARC scientists and engineers marks the beginning of a new era in the programme of development o nuclear technology for peaceful purpose. This is the first reactor of the type in India and is entirely fuelled by man-made element 'plutonium' produced at Trombay. An important feature of this reactor is that it contains no moderator to slow down the neutrons unlike any other research and power reactors in the country. The chain reaction is sustained entirely by the fast neutrons.

PRODUCTION TRENDS IN PETROLEUM

India produced 7.2 million tonnes of crude oil in 1971—400,000 tonnes more than in the preceding year. The production of refined petroleum products increased to 19.6 million tonnes in 1971 compared to 18.5 million tonnes in 1970.

The activities and exploration of oil production were stepped up both in the eastern and western regions of the country by Oil and Natural Gas Commission. The rate of production was increased from 10,000 tonnes per day in March 1971 to about 11,160 tonnes per day in December 1971. Since its inception and by the end of 1971 the Commission produced and sold a total of 22.2 million tonnes of crude oil. 48 wells were drilled by the Commission with a total metreage of 81,593 in Gujarat, Assam and Jammu & Kashmir thus taking the number of wells drilled by the ONGC from its inception to 930 of which 504 were oil-bearing, 70 gas bearing, 22 water injection and 252 dry wells, (the rest are under test). The Commission is also undertaking exploration for oil in the off-shore areas in a big way. A self-propelled jack-up type drilling platform in the off-shore area of western coast is expected to be delivered to the Commission by the end of 1972. The development of pipeline technology in India can best be seen by the completion of Kalol-Nawagam pipeline to transport oil from the North Gujarat oil fields to Koyali refinery. The pipeline was designed and executed with wholly Indian know-how and personnel.

The Oil India Limited produced 3.14 million onnes of crude oil in 1971 from its oilfields in the North Eastern Region. The company completed during he year one exploratory well and 13 development wells. Till the end of 1971 they had drilled a total of 297 development wells and 15 exploratory wells with a total metreage of approximately 955,520 and 64,783 respectively.

During 1971 the nine operating refineries in India refined 19.6 million tonnes of crude oil, over one million tonnes more than in 1970. About 11 million tonnes of crude was refined by the five public sector refineries and the balance by the four refineries in the private sector.

Of the three refineries under the Indian Oil Corporation refining capacity of Koyali (Gujarat) Refinery was augumented by nearly 0.9 million tonnes per annum. Expansion of the Barauni refinery from its present capacity of 2.2 million tonnes to 3.4 million tonnes was expected to be achieved by June 1974 when the third-million-tonne unit of the refinery would start operating. The fourth refinery of the Corporation being set up at Haldia in West Bengal is making steady progress. A one million tonnes refinery at Bongaigoon (Assam) will be another in the chain of refineries for which the foundation stone has already been laid by the Prime Minister in January, 1972.

MINI ELECTRONIC EXCHANGE DEVELOPED

The Indian Telephone Industries, Bangalore have designed and developed a small electronic exchange system which will be put on field trial soon. The ITI has also developed a 10 watt VHF radio system for inexpensive communication facilities in rural areas and the equipment is now on trial. This kind of equipment would be of immense use in hilly places where it would be difficult and costly to erect conventional telephone lines. The ITI is well on the way to design new exchange equipment capable of standing heavy loads under Indian conditions. The designing of this equipment is in an advanced stage.

The turnover of the company during 1971-72 reached Rs. 335 million registering an increase of about 30 per cent over the previous year. The main items of production include 250,000 numbers of telephone instruments of various types, about 130,000 lines of strowger exchange equipment, 80,000 lines of crossbar exchange equipment and microwave coaxial and other carrier systems including electronic instruments of the value of Rs. 73 million. The production of crossbar exchange equipment doubled during the year and towards the end of the year the rate of production reached the rated capacity of 100,000 lines per annum in single shift. It is expected that by the end of 1972-73 the full double shift rate of 150,000 lines capacity would be reached.

The second unit of the company at Naini for the manufacture of telephone instruments has been started. Production in this unit is to commence during 1974. The company has also plans to set up another new factory for manufacture of telephone exchanges and switching equipment. The factory will have an ultimate capacity to produce 300,000 lines of telephone exchange equipment. The ancillary unit of the company at Srinagar in Jammu and Kashmir which was started during 1970-71, is now being expanded. Some of the components so far imported are to be manufactured in the ancillary industrial estate.

TREND IN PYRITES PRODUCTION

M/s. Pyrites, Phosphates and Chemicals Limited, in the public sector have developed mines in Bihar (Amjhore) for the production of 4000 tonnes of pyrites per day. The company has been engaged in the exploration of Pyrites deposit for the manufacture of sulphur and sulphuric acid. The first phase of the Amjhore Mining Project was completed in March 1969 and during 1970-71, 35,000 tonnes of pyrites ore was produced. The ore was being mainly consumed by the Sulphuric Acid plant at Sindri.

The Fertilizer Corporation of India was setting up another sulphuric acid plant at Sindri, which is expected to go on stream in 1973-74. Once this plant is commissioned the requirements for Pyrites from Amjhore will go up to 420,000 tonnes per year.

The P.P.C.L. have also taken in hand exploratory drilling for the development pyrites deposits in Saladipura in Rajasthan and investigations through drilling and geological studies are in progress. The company is also implementing the Rock Phosphate Mining Project at Maldeota in Uttar Pradesh. Geological investigations in the area established an ore reserve of 7.25 million tonnes of Rock Phosphates.

MINERAL ORES

India is rich in mineral resources. Important among the wide range of minerals produced in India are : iron ore, coal, asbestos, barytes, bauxite, beach sands like ilmenite, rutile and zircon, china clay, chrome corundum, gypsum, kyanite, lime stone, magnesite, manganese ore, mica, sillimanite and steatite (talc).

The total value of mineral production in India (excluding Goa) in 1969 was Rs. 3976 million as against Rs. 3709 million in the previous year. Fuels, the leading group accounted for Rs. 3221 million of 82 per cent of the total production. The share of metallic minerals was Rs. 441 million and that of non-minerals Rs. 314 million accounting for 11 per cent and 7 per cent respectively.

The quantity index of mineral production stood at 177 in 1970 (Base 1960=100). Coal mining index in the year was 147 while those metal of mining and non-metallic mining were 144 and 217 respectively.

Iron Ore

India has vast resources of iron ore, having varying contents of iron. The main varieties are of the high grade with 60 to 65 per cent Fe content. The important producing states are Madhya Pradesh, Goa, Orissa, Bihar and Mysore.

The measured, indicated and inferred reserves of hematitic ore are placed at 8146 million tonnes while magnetitic ores are around 2025 million tonnes. The total production of iron ore in the country was of the order of 30.78 million tonnes in 1970 and 29.57 million tonnes in 1969. In the 1970 production, Andhra Pradesh had a share of 0.11 million tonnes, Bihar 5.12 million tonnes, Madhya Pradesh 7.17 million tonnes, Maharashtra 0.45 million tonnes, Mysore 2.89 million tonnes and Orissa 6.27 million tonnes. The production of iron ore from Goa region was around 8.78 million tonnes.

With the increasing demand for iron ore both in the internal and external markets, the mining activity is being expanded and strengthened. The National Mineral Development Corporation Ltd., set up as a Government Undertaking in 1958 is engaged in the development of iron ore mining by way of exploiting the large deposits located at various parts of the country through mechanised means.

In India's export trade iron ore has come to occupy a prominent place. In the Fourth Five Year Plan a significant role has been given to the iron ore exports.

An annual growth rate of 9.2 per cent has been stipulated for exports of iron ore during the period 1968-69 to 1980-81. According to this projection, exports of iron ore are to generate Rs. 1550 million worth of foreign exchange in 1973-74, Rs. 2150 million in 1978-79 and Rs. 2520 million in 1980-81.

Iron ore exports, by the Minerals and Metals Trading Corporation (MMTC) during the first full year of its operation, 1964-65, totalled 5.3 million tonnes which have since increased to 12.11 million tonnes in 1970-71. Taking into account the performance of the Goan Shippers also, the exports by India have doubled between the same two periods–from 10.2 million tonnes to 20.8 million tonnes.

Foreign exchange earnings through export of iron ore crossed the rupee 1000 million mark for the first time in 1969-70, and in 1970-71 it increased further by about 15 per cent to over Rs. 1154 million. The MMTC's share in 1969-70 was Rs. 708 million which increased to 804 million in 1970-71. During the five years from 1966-71 the country has exported about 82 million tonnes and has earned about Rs. 4510 million of foreign exchange through this single item.

As regards direction of trade, continued advantage is being taken for the expanding market in Japan. In 1970-71, nearly 70 per cent of exports by the MMTC were made to that country. Another significant feature was exports to East Europe; these exports, which had been ranging between two and three million tonnes a year during the last few years exceeded three million tonnes for the first time in 1970-71. In the interest of diversification a steady foothold is also being maintained in West Europe, where more can be done as soon as the port development programme presently under implementation is completed.

Coal

Coal occurs in large quantities in India, the estimated reserves up to a depth of 2000 ft. being of the order of about 87,300 million tonnes. The coal deposits in Jharia, coal-field in Bihar and Raniganj coal-field in West Bengal constitute about 40 per cent of the explored coal deposits and coal of the best quality is available in these two areas. During 1970, the total production of coal was of the order of 75.29 million tonnes.

India's exports of coal, coke and briquttes improved to Rs. 40.12 million in 1970-71 from Rs. 20.54 million in 1969-70. The quantity exported in 1970-71 was of the order of 532,000 tonnes. The major importers of coal were Burma, Nepal, Nigeria and Japan while coke was mainly directed to Burma, German Federal Republic, Japan and Singapore.

Manganese Ore

India occupies an important position in the world manganese ore production. Indian manganese ore is generally hard and lumpy in nature and is amenable to easy reduction. The important producing states are Orissa, Mysore, Maharashtra, Madhya Pradesh, Andhra Pradesh, Bihar and Goa. The measured, indicated and inferred, reserves are of the order of 108.35 million tonnes.

Actual production of manganese ore during 1970 and 1969 were of the order of 1.65 million tonnes and 1.45 million tonnes respectively. Of the total production in 1970, Orissa has a share of 487,650 tonnes followed by Mysore with 362,100 tonnes, Maharashtra with 214,400 tonnes, Madhya Pradesh with 213,600 tonnes, Goa region with 202,740 tonnes, Andhra Pradesh with 148,330 tonnes and Bihar with 20,580 tonnes.

The manganese ore mining industry is to a great extent export-oriented. Domestic consumption is also steadily increasing along with the stepping up of the production of steel and establishment of ferro-manganese plants.

During 1969-70 the exports of manganese ore were of the order of 1.2 million tonnes valued at Rs. 112.6 million. The performance improved to 1.64 million tonnes at Rs. 139.78 million in 1970-71. This consisted of 74,812 tonnes of first grade ore valued at Rs. 9.68 million, 471,218 tonnes of second grade ore at Rs. 53.93 million, 1.09 million tonnes of ferruginous ore at Rs. 74.89 million and 4000 tonnes of peroxide ore below 86 per cent MN02 at Rs. 1.28 million.

As to the direction, Japan is the major market for Indian manganese ore. In 1970-71 that market absorbed as much as 1.30 million tonnes at Rs. 111.08 million. The other major destinations are U.S.A., Czechoslovakia, Belgium, Netherlands and Spain.

The existing production capacity of ferro-manganese is sufficient to meet the internal requirements of the country, besides allowing a considerable quantity for export. The actual production in 1970 was 173,198 tonnes as against 154,905 tonnes in 1969.

During 1970-71 nearly 87,650 tonnes of ferro-manganese was exported from India at a value of Rs. 84.24 million. U.S.A. accounted for 30,082 tonnes valued at Rs. 25.96 million while Japan absorbed 24,328 tonnes at Rs. 25.58 million. Intake by Sweden in the year stood at 22,432 tonnes amounting to Rs. 19.42 million. The other destinations were A.R.E., Rumania, U.K., Burma, Malaysia, Philippines, German Federal Republic, Italy, New Zealand and Uganda.

Mica

India is the largest producer of mica in the world and meets nearly 70 per cent of the world demand for this mineral. Besides enjoying near monopoly as a supplier of mica, India produces the best quality in the world. Mica is found in Andhra Pradesh, Bihar and Rajasthan. The greater part of the world supply of block mica of large size and high quality is produced by the Bihar mica belt. Production of mica in 1970 amounted to 21,236 tonnes of which, output of crude mica amounted to 16,274 tonnes and mica waste and scrap 4,962 tonnes.

Mica possesses unique combination of flexibility, resistance, transparency, low chemical and thermal conductivity, and high de-electric strength which makes this mineral usable in many industries and for diversified applications. Extensive use of mica is made n spark plugs for high power motors, transformers, adio condensors and in radar circuits, filaments in adio tube receiving sets, filter in television ets, insulation in generators or motors which un at high temperature, insulation commutators, apacitors and in the electronic industry.

India is the foremost exporter of mica in the world. During 1970-71 foreign supplies of mica including the splittings and waste were of the value of Rs. 153.6 million (26.6 million kg.).

Mica blocks are available for export in different categories—Andhra Ruby fine and spotted; Bihar and Rajasthan super-fine, clear and slightly stained, fair stained, heavy stained and spotted. Major export variety is the Bihar and Rajasthan good stained blocks. Besides the blocks, mica is exported in the form of condensor of films, book form splittings and various other quality splittings. It is also exported in the form of scrap, waste and powder.

Besides mica blocks, waste and powder, India exports certain types of fabricated mica like condensor film plates, washers and discs, sheets and strips, micanite etc. Overseas supplies of fabricated mica in 1970-71 amounted to 177,119 kg. at Rs. 16.08 million.

Export of mica has been canalised through the Minerals and Metals Trading Corporation of India, New Delhi from January 1972. However, manufactured and fabricated mica as also micanite, reconstituted mica, mica powder and mica paper have been left out of the scope of canalisation.

Bauxite

In India, bauxite chiefly occurs in association with laterite. Bauxite deposits in India mainly occur in Bihar, Goa, Gujarat, Madhya Pradesh, Maharashtra, Mysore, Tamil Nadu and Uttar Pradesh. It occurs in various grades, the alumina content varying from 43 to 80 per cent. The estimated resources in India of all types of ores are of the order of 236 million tonnes, of which 141 million tonnes are measured, 33 million tonnes indicated and 60 million tonnes inferred.

The total production of bauxite was of the order of 1.36 million tonnes in 1970 and 1.07 million tonnes in 1969. The statewise production in these two years were: Bihar 493,200 tonnes and 453,700 tonnes, Goa, 74,600 tonnes and 58,500 tonnes, Gujarat 244,500 tonnes and 250,400 tonnes, Madhya Pradesh 236,100 tonnes and 65,100 tonnes, Maharashtra 121,400 tonnes and 12,400 tonnes, Mysore 85,300 tonnes and 38,400 tonnes, Tamil Nadu 84,800 tonnes and 72,200 tonnes and Uttar Pradesh 19,900 tonnes and 22,200 tonnes. India's export of bauxite in 1970-71 was of the order of 80,176 tonnes valued at Rs. 6.57 million. Czechoslovakia, Japan and U.K. were the main markets.

Banzites

Three grades of banzites snow white, white and off colour are mined in India. Andhra Pradesh and Rajasthan are the major banzites producing states. The higher grades, snow white and white ore mainly mined in Andhra Pradesh. The indicated reserves of this mineral in Andhra Pradesh are 15 million tonnes. The inferred reserves in some areas of Andhra Pradesh, Madhya Pradesh and Tamil Nadu are 0.27 million tonnes. Besides, a reserve of 2.5 million tonnes of quartz – banzites rock with 25 per cent banzites has been estimated in Tamil Nadu. The actual production of banzites in the country was around 71,900 tonnes in 1970 as against 65,500 tonnes in 1969.

Export of banzites excluding barium oxide during 1970-71 amounted to 14.63 million kg. valued at Rs. 3.69 million. Saudi Arabia, Abu Dhabi and Singapore were the main importers.

China Clay

With an inferred reserves of 201 million tonnes, china clay is produced in almost all the States of India. It is the principal raw material for ceramics and certain refractory products. In smaller quantities china clay is used in the manufacture of paper, textile and rubber products. The measured and indicated reserves of crude china clay are around 44 million and 58 million tonnes. The total production of processed china clay was of the order of 102,100 tonnes in 1970 and 99,100 tonnes in 1969. Besides, nearly 188,000 tonnes of crude china clay was produced in these years. Nearly 379,950 kg. of china clay at Rs. 107,000 were put on the export stream in 1970-71.

Chromite

Indian production of chromite consists of metallurgical refractory and chemical grades. Fines and concentrates form the bulk of the production which mainly comes from Orissa. The measured reserves of this ore are about 4.04 million tonnes of which Orissa accounts for 3.87 million tonnes and Mysore 0.17 million tonnes. The indicated reserves are of the order of 2.52 million tonnes and inferred reserves 7.30 million tonnes. The inferred reserves from Orissa alone are placed at 6.78 million tonnes, The production of chromite in the country was nearly 271,000 tonnes in 1970 as against 226,000 tonnes in 1969 and 206,000 tonnes in 1968. Orissa had a share of nearly 261,000 tonnes in the 1970 production.

Overseas supplies of chromite and chromium ore in 1970-71 were of the order of 117,589 tonnes of a value of Rs. 25.66 million and the entire quantity was directed to Japan.

Felspar

Felspar or feldspar occurs in India as a rock forming mineral having various colours - pink, brown, grey etc. Both the potash and soda felspars are produced in the country. The present production which is of the order of about 30,000 tonnes meets the entire requirement of the glass, ceramic and refractories industries. Besides, more than a third of the production is made available for export.

Foreign supplies of felspar during 1970-71 was to the tune of 12,409 tonnes at Rs. 1.34 million. Singapore, Japan and China Republic were the major importers of this item.

Gypsum

With an inferred reserves of 1190 tonnes, gypsum mainly occures in the States of Rajasthan and Tamil Nadu. Of the inferred reserves, the availability in Rajasthan alone is around 1087 million tonnes. Besides these two States, gypsum occures in Gujarat, Himachal Pradesh, Jammu and Kashmir, Maharashtra, Uttar Pradesh and Andhra Pradesh. During 1970 nearly 0.90 million tonnes of gypsum was produced in the country. The different grades of the ore produced in India are the special grade, Sindri grade, cement grade, agriculture grade and selenite.

Ilmenite

The beach sands of Tamil Nadu and Kerala contain large resources of ilmenite which is estimated to be around 110 million tonnes. The present installed capacity of the processing plants is sufficient to cater to the internal demand from the pigment industry as also the export demand for beneficiated ilmenite. The production of this mineral was nearly 48,000 tonnes in 1969 of which Tamil Nadu accounted for 35,000 tonnes and Kerala 13,000 tonnes.

Ilmenite exports from India during 1970-71 amounted to 28,394 tonnes valued at Rs. 1.84 million. Japan, the main market accounted for 28,200 tonnes at Rs. 1.82 million.

Kyanite

With an actual production of nearly 119,000 tonnes in 1970, kyanite mainly occur in the States of Bihar and Maharashtra. Bihar had a share of 102,000 tonnes while Maharashtra had 17,000 tonnes.

The inferred reserves of all grades of Kyanite in the country are of the order of 3.70 million tonnes. Of this Bihar has 0.52 million tonnes, Maharashtra 1.92 million tonnes, Mysore 0.79 million tonnes and Orissa 0.50 million tonnes. Besides, indicated reserves are around 0.50 million tonnes.

India exported in 1970-71 nearly 50,502 tonnes of calcined kyanite at a value of Rs. 23.38 million and 11,458 tonnes of kyanite other than calcined at Rs. 4.93 million. Belgium, German Federal Republic, Italy, Japan, Poland, Switzerland and U.K. were the main markets for the calcined variety while U.K., Italy, Belgium and German Federal Republic were the main destinations for the non-calcined variety.

Magnesite

The present production of magnesite comes from the States of Tamil Nadu, Mysore and Rajasthan. Tamil Nadu accounts for nearly 95 per cent of the production. In 1970 nearly 349,000 tonnes of magnesite was produced. Tamil Nadu's contribution was nearly 341,500 tonnes while Mysore had a share of 7500 tonnes.

The measured, indicated and inferred crude reserves are around 10.18 million tonnes, 220,45 million tonnes and 293.47 million tonnes. The known recoverable reserves are however 8.03 million tonnes measured, 12.19 million tonnes indicated and 15.21 million tonnes inferred.

The production of lightly calcined and dead burnt magnesite was of the order of 36,800 tonnes and 65,000 tonnes respectively in 1969.

Overseas sales of magnesite during the year 1970-71 was to the tune of 34,525 tonnes at Rs. 10.49 million. Netherlands, USA, German Federal Republic and U.K. were the major destinations for Indian magnesite.

Sillimanite

The main sillimanite occuring States are Meghalaya and Madhya Pradesh. Besides, the beach sands of Tamil Nadu and Kerala also yield this mineral in good quantities. The average alumina content of the Meghalaya sillimanite is 62 per cent and that of Madhya Pradesh is 57 per cent. The unique property of Meghalaya sillimanite is that it does not require any calcining or special processing before use for brick and block making.

The total indicated and inferred reserves are about 0.34 million tonnes. The estimated reserves in Meghalaya are around 0.23 million tonnes. Besides, the beach sands of Kerala and Tamil Nadu are reported to contain 5 to 10 per cent of sillimanite.

The total production of sillimanite in the country in 1970 was around 4,600 tonnes with Meghalaya contributing 3000 tonnes, Tamil Nadu 1000 tonnes, Kerala 500 tonnes and Madhya Pradesh 100 tonnes.

Sillimanite is marketed in various forms such as sawn blocks, and in sizes of one mesh, 5 mesh and 10 mesh.

Exports of sillimanite in 1970-71 were of the order of 1801 tonnes at Rs. 1.03 million. Belgium, German Federal Republic and Japan were the importers of this item.

Steatite

Steatite, talc or soap stone of all grades is available in India. It is marketed as blocks and powders of various mesh sizes. The inferred reserves of this mineral are of the order of 6.21 million tonnes. Deposites of commercial importance occur in Andhra Pradesh, Bihar, Madhya Pradesh, Maharashtra and Rajasthan. About 90 per cent of production comes from the State of Rajasthan.

The 1970 production was of the order of about 155,000 tonnes. The production from Rajasthan was 135,500 tonnes, from Andhra Pradesh 10,000 tonnes, from Madhya Pradesh 5,400 tonnes and from Maharashtra 2,800 tonnes.

Steatite blocks were exported to the tune of 5596 tonnes at a value of Rs. 1.55 million in 1970-71. Japan was the main customer. Norway and German Federal Republic were the other major buyers from India. Steatite powder brought in Rs. 3.20 million in the year through an export quantity of 8226 tonnes. U.K. led the list of importers/followed by Nigeria, Netherlands, Yugoslavia, Spain, Malaysia and Ceylon.

Port facilities

In India, the traffic handled by the major ports during the year 1970-71 was about 55.6 million tonnes and it is expected to increase to 90 million tonnes by the end of 1973-74. In order to cope with the envisaged increase in foreign trade, expansion of the existing and construction of new ports have been taken up. India's present major ports are Calcutta, Bombay, Madras, Cochin, Visakhapatnam, Kandla, Mormugao and Paradip, while new ports at Mangalore on the west coast and Tuticorin on the east coast are under construction. The construction of Haldia Project in Calcutta Port Complex and the expansion of the Bombay Port are in progress. Construction of an outer harbour in the Madras Port consisting of two berths, one being for ores, is in progress. Construction of a new open berth in the Cochin Port also is in progress. The Visakhapatnam outer harbour project will facilitate the export of iron ore up to 12 million tonnes per annum is expected to be completed by 1973-74. All these port expansion schemes are expected to further boost up the export trade in mineral ores particularly iron ore. ☐

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EXPORT PROMOTION OF SPORTS GOODS

A wide range of sports goods made in India has already become popular in overseas markets. The year 1970-71 witnessed a sizeable improvement in the export of sports goods at Rs. 17.6 million as against Rs. 13.5 million earned during 1969-70 and Rs. 11.9 million during 1968-69. In the first half of 1971-72 (April-September 1971), the export of sports goods at Rs. 9.4 million improved by almost 50 per cent over the corresponding period of 1970-71 at Rs. 6.5 million.

M/s. Hans Raj Mahajan & Sons, G. T. Road, Jullundur City, have recently received an award from the Sports Goods Export Promotion Council, IE/6, Jhandewalan Extension, New Delhi-55, for their best export performance during 1970-71 at about Rs. 2 million. The items exported by the firm are hockey and cricket equipment mainly to the U.K. and other West European countries.

M/s. F. C. Sondhi & Co. (India) Pvt. Ltd., Basti Sheikh Road, Jullundur City, had also received an award from the Council. Their export of football and soft leather goods mainly to U.K. were at a level of Rs. 1.37 million during 1970-71.

The highest export award in leather balls went to M/s. Pioneer Sports Works Pvt. Ltd., Nakodar Road, Jullundur City. Their export earnings during 1970-71 were Rs. 1.23 million. Their export products that were supplied mainly to West Europe included footballs and other hockey equipment, as also cricket equipment.

The best exporter of cricket equipment in the year, M/s. Greenlands, 28/32, Victoria Park, Meerut fetched Rs. 891,000 in foreign exchange through their exports of soft leather goods to Australia and West Europe.

Next in importance M/s. Redlay Sports, Basti Nau, Jullundur City, whose export earnings during, 1970-71 were Rs. 542,000 through their supplies of footballs to West Europe.

The highest export award in E.P.N.S. sportsware went to M/s. Gulati Cottage Industries, 4, D.B. Gupta Market, Karol Bagh, New Delhi-5. Their supplies of sports cups and trophies which were mainly to Malaysia and Singapore fetched Rs. 306,000 in foreign exchange.

Among the other distinguished exporters who received export awards from the above Council were M/s. Enkay (India) Rubber Co. P. Ltd., D 556-D, Kamla Nagar, Delhi-7, for their efficiency in the export of rubber latex and other bladders; M/s. Symonds & Co. (P) Ltd., 15 Elgin Road, Allahabad for their export performance in rackets; M/s. Amar Nath Mahajan & Sons, S/128, Sports Town, Jullundur, for their export trade in hockey, cricket equipment and other sports items which they supplied to East Africa and South East Asia; M/s. Dipak Agencies P. Ltd., 4/9, Asaf Ali Road, New Delhi, whose distinction is in the export field of nets mainly to U.S.A., and M/s. Surya Trading Corporation of India Pvt. Ltd., 6-B/8, N.E.A. Rajender Nagar, New Delhi-60, who were the best exporters of sports hosiery.

INDUSTRIAL VALVES TO POLAND

About Rs. 2.47 million worth of industrial valves were exported by the Indian Industry during 1970-71 at a quantity of 0.55 million kgs. Malaysia was the principal market with an import intake valued at Rs. 0.7 million. Czechoslovakia, Singapore, Iran, Iraq, Poland, Thailand and Arab Republic of Egypt were the other leading purchasers.

Recently an export order worth Rs. 1.2 million has been received by a Bombay firm from Poland for the supply of 2000 numbers of industrial valves. Out of the supplies to be effected, 1100 numbers are ASA cast wedge gate valves in sizes ranging from 51 mm to 254 mm. The balance supplies are to be for ASA forged steel gate valves in sizes 13 mm to 38 mm.

The Indian party that bagged the above order from Poland, M/s. Fouress Engineering (India) Private Limited, Mahalaxmi Chambers, 22 Bhulabhai Desai Road, Bombay-26 (WB) had been exporting mainly to West Asian and Far East Markets. In March this year, a visiting delegation from Poland was convinced of the competence of the firm's products and placed the order.

The firm has developed its own designs without any foreign collaboration and has come to manufacture a wide range of industrial valves including cast steel gate and globe valves in sizes from 38 mm to 609 mm, cast steel Lift-check valves in sizes 38 mm to 254 mm, forged steel gate and globe valves in sizes 13 mm to 38 mm, butterfly valves etc.

MACHINE TOOLS ON EXPORT FRONT

The machine tool industry in India witnessed record production trends in recent years. In 1970-71 the production was around the value of Rs. 372 million against Rs. 267 million in 1969-70; the highest output so far in the last five years was in 1966 at a level of Rs. 285 million.

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India's tota exports of machine tools were of the order of Rs. 28.4 million in 1970-71 as against Rs. 29.5 million in 1969-70. It is expected that during 1971-72 the export performance would be better as the General System of Prefernces introduced by the U.S.A. and EEC countries, Japan, Canada and the U.K. favouring the developing countries came into effect from July, 1971.

In 1951, only three major units in the country produced machine tools of accepted standards. Industrial requirements of nearly Rs. 40 million were mostly imported. But during the second and third plan periods the industry expanded rapidly. By 1966 indigenous production stood at Rs. 285 million, with total consumption being of the order of Rs. 71 5 million. Since then there has been even a higher level of indigenous share in the total consumption. The imports in 1970 stood at 33 per cent of the total consumption.

Today the machine tool industry which appears to have finally come out of the recessionary impact is composed of about 112 units with an annual capacity of manufacturing about Rs. 7700 million worth of tools of various types and of different levels of sophistication. In addition, the small scale sector has a capacity to manufacture about Rs. 40 million worth of machine tools. Thus the industry is now in a position to meet about 70 per cent of the total requirements. Production has considerably diversified and now a wide range of machines such as centre, turret and capstan lathes, shapers, drills, grinders, single spindle automatics, heavy duty planning machines, multitool and multi spindle automatics, are produced indigenously. The general purpose machine tools like lathes, shapers etc. which still form the backbone of the industry have been considerably improved in terms of technical know-how. Recently development of special purpose machine tools lines has also been taken up.

The State-owned Hindustan Machine Tools Limited have made notable progress dnring 1971-72 in terms of production, sales and export trade. Their exports of machine tools which were at Rs. 11 million during 1971-72 are expected to improve further to about Rs. 15 million during 1972-73.

HMT's net profit has shot up from Rs. 3.1 million in 1970-71 to over Rs. 10 million in the year that followed.

The company's new units engaged in the manufacture of tractors, dyecasting and plastic injection moulding machines and printing press machines are improving faster towards optimum production. It is envisaged that the rise in production and sales would go up sharply from Rs. 290 million in 1971-72 to Rs. 400 million in 1972-73.

SOAP FACTORY IN MALAYSIA

The Mysore Government Soap Factory, Bangalore is setting up a sandalwood soap factory in Malaysia in collaboration with M/s. P. Lal Stores, Kuala Lumpur, for the manufacture of Mysore Sandal Soap. The Indian party's share in the total equity capital of Rs. one million will be Rs. 0.1 million to be subscribed through exports of perfume compound. The Indian participation will also be in the form of capitalsiation of technical know-how.

The Mysore Goverment are to provide the required technical know-how, and advice which would include training of personnel, manufacturing information, designs, engineering technique, testing process etc. and also provide the necessary technicians, engineers and managerial officers for this purpose.

Malaysia is one of the largest producers of palm oil and coconut oil and as such the raw materials will be available in abundance. This is one major reason indicating the profitabilty of the project. The production capacity of the project is estimated at Rs. 0.8 million to 1 million when it would go into full production.

In addition to the export of perfume compound, the Indian party is also to supply machinery and equipment on cash payment basis.

The above project would be the first joint venture in which a State Government undertaking of India is taking part.

EXPORT OF RARE EARTHS

The Indian Rare Earths Limited, Pil Court, Maharishi Karve Road, Bombay earned Rs. 10.4 million in foreign exchange during 1970-71 through exports of rare earths chloride and ilmenite. The company had received the top award for export for the year 1969-70 by the Basic Chemicals, Pharmaceuticals and Soaps Export Promotion Council, Bombay.

The Minerals Division of the Company has an installed capacity of 280,500 tonnes of raw sand processing and 4,200 tonnes of monazite processing. The actual production achieved during 1970-71 was 177,200 tonnes of raw sand processing and 3,541 tonnes of monazite processing. Through the raw sand treated in the year the company turned out 78,044 tonnes of ilmenite, 3,632 tonnes of monazite, 6,940 tonnes of zircon and 2170 tonnes of rutile. Of processed monazite, the out-turn of R. E. Chloride was 3,894 tonnes, trisodium phosphate 4,764 tonnes and Thorium Hydroxide (West) 1250 tonnes.

CONTRACTS FOR IRON ORE EXPORTS

The Minerals and Metals Trading Corporation, New Delhi, have recently entered into contracts for supply of iron ore to Poland, Bulgaria and Rumania. The supplies are to be effected during 1972-73.

The supplies contracted with Poland are for 450,000 tonnes valued at Rs. 32 million; to Bulgaria 400,000 tonnes valued at Rs. 29.6 million. Rumania, however, will have the largest share of these supplies at 1800,000 tonnes valued at Rs. 105.6 million.

India's iron ore exports during 1970-71 were of the order of Rs. 1172.8 million as against Rs. 946.2 million in 1969-70 and Rs. 884.0 million in 1968-69. During the period April-November 1971 the export value was of the order of Rs. 623.9 million.

SPANNERS FOR EXPORT TO POLAND

The Poland Foreign Trade Enterprise, METAL EXPORT, have entered into three contracts with M/s. Hindustan Dowidat Tools Limited for the import of spanners at a value of Rs. 8.3 million. This is a part of Poland's continuing interest in the import of non-traditional products from India.

India's export trade in spanners during 1970-71 was of the order of Rs. 13.14 million, as against Rs. 5.46 million during 1969-70. The major importers in 1970-71 were Czechoslavakia (Rs. 3 million), U.S.S.R. (Rs. 2 million), (U.K. Rs. 1.3 million), Federal Republic of Germany (Rs. 0.89 million), Iran (Rs. 0.80 million), South Vietnam (Rs. 0.7 million), Philippines (Rs. 0.58 million), Greece (Rs. 0.47 million). There were no imports effected by Poland in that year for this item.

EXPORT PERFORMANCE AND POTENTIAL

EXPORT PERFORMANCE OF PUBLIC SECTOR UNDERTAKINGS

The export earnings of India's public sector undertakings during 1970-71 amounted to Rs. 960 million. The contribution of M/s. Hindustan Steel Limited alone was Rs. 530 million. Their export earning in the preceding year of 1969-70 was Rs. 456.3 million. Exports of iron ore to Japan by the National Mineral Development Corporation amounted to Rs. 331.5 million.

Other exports effected by the public sector undertakings were petroleum products by M/s. Indian Oil Limited, telephone exchange products by M/s. Indian Telephone Industries Limited, Machine Tools and wrist watches by M/s. Hindustan Machine Tools Limited.

Additionally, foreign exchange of the order Rs. 930 million has also been earned by Air and Shipping Corporations and Ship repair units through services rendered. Of this amount, the earnings by the two Air Corporations account for Rs. 560 million, Shipping Companies Rs. 340 million and Ship repair and other units Rs. 30 million.

Besides these earnings, the production in the public sector undertakings also helped foreign exchange savings as actual imports would have been larger in the absence of domestic production in these undertakings.

A further investment of 3810 million was made by Government in public sector enterprises during 1970-71, taking the overall investment in these undertakings numbering 97 to Rs. 46,820 million. Of this investment, effective capital employed in production was Rs. 37,540 million. The balance represented the capital employed in the undertakings under construction or expansion, according to the Bureau of Public Enterprises, New Delhi.

STEADY DEMAND FOR INDIAN HANDLOOMS

If the encouraging trend of export performance in recent years is any indication, handloom goods made in India present vast possibilities of export potential to Europe. Exports of cotton handloom materials to France, for instance, increased from Rs. 350,000 in 1968-69 to Rs. 4.3 million in 1970-71. The export of silk items, however, showed a drop from Rs. 7.6 million to Rs. 6 million during the same period.

Export of cotton items to West Germany rose from Rs. 1.2 million in 1968-69 to Rs. 2.74 million in 1970-71, and those of silk from Rs. 8.2 million to Rs. 26.1 million.

In respect of Denmark, export of cotton handlooms increased from 500,000 to Rs. 1.4 million and silk from Rs. 1.4 million to Rs. 2.9 million in the comparable years.

To Norway, the export of cotton varieties were Rs. 100,000 in 1970-71. The silk categories rose from Rs. 100,000 in 1968-69 to Rs. 800,000 in 1970-71. Export of cotton items shot up from Rs. 0.6 million in 1968-69 to Rs. 5.2 million in 1970-71 in the case of Sweden.

In regard to U.K. export of cotton items rose three-fold to Rs. 18.1 million from Rs. 5.9 million; Silk items doubled their exports to this market from Rs. 3 million to Rs. 6.3 million.

EXPORT OF POPPY HUSK

Though not in large quantities, poppy husk is exported from India mainly to West Germany and Switzerland. In 1970, 32,430 kg. of the material was supplied abroad, of which 27,875 kg. went to West Germany and 4300 kg. to Switzerland. The other importers from time to time included the U.K., Netherlands, Muscat and Denmark. The amount of foreign exchange earned from these exports in 1970 was Rs. 208,500.

Presently poppy is cultivated in the States of Madhya Pradesh, Uttar Pradesh and Rajasthan under licence from the Narcotics Department. Poppy contains morphine to the extent of 0.1 per cent to 0.3 per cent and can serve as a potential substitute for opium.

FOREIGN ORDERS FOR SALT

Export trade in salt has been canalized through the State Trading Corporation of India since June 1959. The export quantum which was about 150,000 tonnes during 1960-61 increased to over 600,000 tonnes by 1969. Thereafter the export trade witnessed a drop to 479,000 tonnes in 1970 and 319,000 tonnes in 1971.

Japan which was the principal importer of salt from India till 1970 terminated its bulk imports. In 1971 Korea emerged as the major importer which had an intake value of 206,600 tonnes. In the year, the ther important importers were Singapore, Nepal, Philippines and Thailand.

Recently a long term contract for 105,000 tonnes of salt export was finalized by India with Uganda. Deliveries against the contract are to be effected in equal instalments during three years since 1972-73. Subsequently another contract for export of 400,000 tonnes of salt was also finalized with Kenya National Trading Corporation and the shipment of the material to Kenya has already been effected.

PROGRESS AT KANDLA FREE TRADE ZONE

There has been a remarkable improvement in the quantum of export trade handled by the Free Trade Zone at Kandla. In 1971-72 the export trade was of the quantum of 670,030 kg. valued at Rs. 8.15 million against 239,989 kg. valued at Rs. 3.45 million in 1970-71.

To augment the trade handled by the Zone, certain steps have been taken such as simplifying of procedure for considering applications requiring Industrial licence, delegation of powers to the Zone authorities to clear applications for import of capital goods into the Zone up to a value of Rs. one million; and grants - in - aid to Export Houses and other industries in the zone.

FOREIGN EXCHANGE FROM LEATHER SHOES AND CHAPPALS

Export earnings of leather shoes and chappals were of the order of Rs. 81.2 million during 1971-72 excluding supplies by air. In the preceding year the export value was about Rs. 92.9 million.

The Indian Government have taken several steps to promote the export of shoes and chappals. In order to increase the unit value realisation, export of raw hides and skins has been banned except for quota for goat skins which is also being progressively reduced. By the year 1973-74, exports of these items are likely to be stopped altogether. Import of raw hides and skins has been placed on Open General Licence (O.G.L.) to augment their supplies and reduce the pressure on consumption of superior quality skins leading to their release for export. Import of wattle bark, wattle extract and other tanning material are also placed on O.G.L.

In addition, the leather industry has been categorised as a priority one and is eligible for priority treatment in the matter of its requirements from preferred sources. For meeting the scarce material of imported origin, import replenishment is also being allowed against export licences.

Also a fullfleged Export Promotion Council for finished leather and leather manufactures at Kanpur has been undertaking promotional activities, such as sponsoring trade delegations and sales and study teams to visit markets abroad, participation in exhibitions abroad, collecting market intelligence and guiding new exporters.

With these measures it is hoped that the export performance of leather shoes and chappals will improve further.

JOINT VENTURES IN AFRICA

Government of India accorded approval to the setting up of 22 joint ventures in the African countries during the last three years i.e. from April 1969 to March 1972. Of these 19 joint ventures are active. In Ethiopia, there is a venture for setting up aluminium sheet rolling mill with the collaboration of M/s. Hooseini Metal Rolling Works, Bombay. In Kenya, a scooter assembly plant is to come up in collaboration with M/s. Automobile Products of India, Bombay, and a cast iron foundry with the help of M/s. Salvi Super Structure, Bombay. A mosaic tiles and rolling shutters factory set up by M/s. Sidharath Jasubhai, Ahmedabad in Mauritius has already started production. Preliminary construction activities have been completed and machinery exports are being arranged from India for the establishment of a rubber factory by M/s. Swastik Rubber, Bombay in Mauritius. A Canning factory is also come up in Mauritius with the help of M/s. Ayurved Sevasharm, Udaipur. Another five more projects are under different stages of development in that country; a hotel project is to come up with the collaboration of M/s. United Agencies, Bombay, a cement plant by M/s. K.C.P. Ltd., Madras, a textile factory by M/s. Orkay Group, Bombay and another textile factory by M/s. Subhash Silk Mills Bombay; and a ready made garments units by M/s. Raymond Woollen Mills, Bombay.

Five joint ventures are to come up in Nigeria with Indian collaboration for the manufacture of textiles, room air conditioners, cycle tyres and tubes, as also a steel rolling mill and a scooter assembly plant.

M/s. Indian Cork Mills, Bombay are making arrangements for setting up a cork factory in Morocco. Arrangements are being finalised for radio assembly with collaboration by M/s. Semi-Conductors, Bombay in Togo. Construction work is in progress for manufacturing sugar in Uganda by M/s. Walchandnagar Industries, Poona.

A major consideration in setting up joint ventures abroad is that equity participation is met by the Indian industry through exports of plant and machinery. This provision along with prospective capacity to effect additional exports related to joint ventures enables increases in exports from India.

SUPPLY OF NUTS AND BOLTS TO SOVIET UNION

Pursuant to the visit of a trade delegation from India to the Soviet Union the possibility of the Soviet Union supplying steel for conversion into screws for re-export to the Soviet Union came to light. The supply of the screws will be according to the specifications required by the Soviet Union. The Deal will be under the management of the State Trading Corporation of India. The three major firms that can supply screws and bolts of high quality are M/s. Guestkeen Williams, Calcutta; M/s. Srikrishna Private Limited, Calcutta and M/s. Maharashtra Small-scale Industries Development Corporation, Bombay.

UNCTAD III—INDIAN REACTION

The achievements of the Third U. N. Conference on Trade and Development (UNCTAD III) have been far from satisfactory, according to India's Foreign Trade Minister, Mr. L. N. Mishra. The attitude of rich nations was not too helpful indeed and the decisions taken by them without full consultation and concurrence of developing countries would not be acceptable to India. 'We shall not implement unilateral decisions arrived at by the rich men's club after consultations among themselves" stated Mr. Mishra. In contrast, socialist countries of East Europe had taken an extremely helpfull and constructive stand.

Outlining Indian Government's approach to some of the important problems dealt with by UNCTAD III, the Minister stressed that developing countries must be actively associated in search for solutions to international monetary crisis and remedial measures. These countries had suffered enormously on account of tariff barriers, monetary crisis and other restrictive policies followed by the rich nations of the West.

FREIGHT HIKES ON OILCAKE EXPORTS

The Indo-U.K./Continent Conference serving the exports from India to U.K. and the Continent have been increasing freight rates on oil cakes from time to time. From U.S. $ 16.25 as on January 1, 1969 the freight was increased five times to reach a level of $ 31.05 as on January 13, 1972. The sharp increase in the freight rates particularly during the years 1970 and 1971 were attributed partly to the firming up of the Charter market. However, when the charter market began to decline, the Conference took no action to bring down the liner rates. With effect from March 13, 1972, the Conference announced a special rate of $ 22.50 net per 1000 kilos for shipment of oilcake and oil cake meal. This rate is subject to 5.5 per cent currency adjustment and 13½ per cent Suez surcharge.

While the shipping rates have been going up over the years, the exports to U.K. which has been India's traditional market for the item have been going down and the percentage share of the U.K. market in India's export has also been declining. Total export of oil cakes during 1965-66 were of the order of 673,845 tonnes of which exports to U.K. amounted to 210,150 tonnes or 31 per cent of the total. In 1970, the total exports in the line were 759,768 tonnes and the share of U.K. was only 100,000 tonnes thus contributing only 13.2 per cent of the total exports. While the extent of decline in exports caused by the freight hikes cannot be quantified because freight is one of the several hindering factors, it is certain that freight rates have been affecting India's export trade in the line.

INDUSTRIAL RAW MATERIALS FROM SOVIET UNION

Certain urgent shortages of industrial raw materials in India created by the suspension of U.S. aid have been partially met by supplies from the Soviet Union.

During 1972, U.S.S.R. is expected to supply to India *inter alia* Technical Diamonds, Kerosene, asbestos, sulphur, ferro-alloys, rolled steel products, zinc, nickel, copper and rolled copper products, platinum, palladium, chemicals including reagents and laboratory chemicals and insecticides such as DDT, Dye Intermediates, refractories, newsprint and drugs raw materials and intermediates.

Due to stoppage of U.S. Aid on December 6, 1971 for import of maintenance items like non-ferrous metals, fertilizers, spares and components etc. alternate sources of supply were explored. The Indo-U.S.S.R. Trade Plan signed on May 5, 1972 provided for the supply of some of the essential raw materials to India.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

NEW LINES IN ELECTRONIC PRODUCTION

The Electronics Corporation of India Limited, Hyderabad-40, have introduced some new instruments during 1970-71 in their production stream. Among the products that the company has produced for the first time in the country are scintiscanner and renograph which are both highly sophisticated medical instruments as well as special types of amplifiers and pulse generators. The new component items introduced are wire-wound resistors, rectilinears and circular trimpots, epoxy transfer moulded rectifiers and boron coated detectors. Apart from the above, the Corporation has introduced analog and digital computers of entirely indigenous design into the market, as well as the first small AC gear motor.

Continuing its developmental efforts, the Corporation is expected to add to the production line during 1971-72 certain sophisticated products such as 400 channel analysers, ultrasonic flaw detectors, nuclear level gauges, 50 MHz solid state plugin oscilloscopes, closed circuit television systems, synchros, digital real time computers, microwave test instruments, silicon rectifiers, defence grade tantalum capacitors and metal film resistors.

The production of the Corporation during 1970-71 was valued at Rs. 2038 million which represented an increase of 62 per cent over that for 1969-70.

The success of the company is notable in view of its objective to indigenously develop electronic systems instruments and components and to make the country's nuclear programme self-reliant. The Corporation's nuclear and allied instruments Division established its reputation in India as the premier source of modern modular transistorised nuclear instrumentation, high performance oscilloscopes, closed circuit television equipment, medical electronic equipment and industrial electronic equipment.

The Power Reactor Instrumentation Division of the Corporation has manufactured and supplied to the Rajasthan Atomic Power Project sophisticated panels, consoles, cubicles and other instrumentation epuipment. Equipment of this quality and complexity had been manufactured for the first time in India. The Division is also in the last stages of installing and commissioning at the Rajasthan Atomic Power Project site the solid state logic and control equipment pertaining to the Fuel Handling mechanisms.

The Servo Controls Division of the Corporation which had concentrated its major effort on the development and production of the first small AC gear motor of India, the AC 510, went into commercial production during the last quarter of 1970-71.

The Corporation's Computer Division distinguished itself by producing India's first on line digital computer on the design developed by Bhabha Atomic Research Centre, as well as by providing a variety of software facilities to enable users to effectively utilise such computers.

PRODUCTION OF DRUGS AND PHARMACEUTICALS

India's production of drugs and pharmaceuticals touched a record figure of Rs. 3000 million during 1971 registering an increase of nearly Rs. 500 million over the estimated value of these products during 1970. The industry had an export performance of about Rs. 90 million in 1971. The industry has also made considerable progress in the context of import substitution by making use of larger quantities of indigenous materials for the basic manufucture of different drugs.

The increase in the output was mainly in antibiotics such as penicillin, tetracycline, streptomycine and chloramphenicol, anti-diabetic drugs like chlorpropamide, anti-pyretics and analgesics such as aspirin, phenacetin and analygin, anti-T.B. drugs, anaesthetics such as xyloxaine as also sulpha drugs and vitamins.

Hindustan Antibiotics Ltd., Poona, a public sector unit is currently engaged in implementing a project to produce 125 tonnes of vitamin C per year. The unit is expected to go on stream at the beginning of 1973. In addition, the company is implementing another project on a phased basis for production of 2000 kg. of neomycin sulphate. The first phase of the project for production of 500 kg. of neomycine sulphate per annum has been completed.

The Indian Drugs and Pharmaceuticals Limited, another public sector unit in its various plants produced a variety of drugs and pharmaceutical items and had a good turnover in the year.

The synthetic drugs plant at Hyderabad produced 758 tonnes of drugs during the first nine months of 1971-72, against a production of 633.44 tonnes during the entire 1970-71. Based on the unit's expansion and diversification programme, it is estimated that the production capacity would reach to about 2000 tonnes by the end of 1973, against its original projected capacity of 826 tonnes.

Production of the antibiotics plant at Rishikesh rose to 83,240 millairds of different antibiotics up to December 1971, against its total production of 72,294 millairds during the whole of 1970-71. The nystatin unit went into production during the first quarter of 1971-72. To improve the production of streptomycin sulphate, a two-stage drier unit has been commissioned.

Till December 1971, the surgical instruments plant at Madras produced instruments worth Rs. 3.45 million, against Rs. 3.93 million during the whole of 1970-71.

The total export value of surgical instruments from the plant up to December 1971 was about Rs. 4.28 million.

FOOD SITUATION IN INDIA

Thanks to a second successive bumper harvest of foodgrains, the food situation in India improved further during 1971 despite the additional pressure of supplies owing to Bangla Desh refugees. Foodgrains production touched a new peak of 107.8 million tonnes in 1970-71 marking an increase of 8.3 million tonnes or 8.4 per cent over the preceding year's record of 99.5 million. Foodgrains procurement too touched a new high of 8.8 million tonnes out of 1970-71 crop, as against 6.6 million tonnes in the previous year. For the first time since independence, domestic procurement of foodgrains exceeded the total to be distributed. Foodgrain imports were reduced from 3.6 million tonnes in 1970, to 2.1 million tonnes in 1971. Concessional imports of foodgrains under PL 480 stopped from January 1972.

The increase in foodgrains production during 1970-71 were shared by all the crops except jowar. New records were esteblished in the production of rice, wheat, bajra and maize. Rice, for instance, was produced to the tune of 4.24 million tonnes in 1970-71 as against 40.4 million tonnes in 1969-70, 39.8 million tonnes in 1968-69, 37.4 million tonnes in 1967-68 and 30.4 million tonnes in 1966-67. Wheat production was 23.2 million tonnes, 20.1 million tonnes, 18.7 million tonnes, 16.5 million tonnes and 11.4 million tonnes respectively.

The total production of cereals including rice and wheat was of the order of 962 million tonnes, 87.8 million tonnes, 83.6 million tonnes, 83 million tonnes and 65.5 tonnes million tonnes respectively. Total prodction of pulses was 11.6 million tonnes, 11.7 million tonnes, 10.4 million tonnes, 12.1 million tonnes, and 8.3 million tonnes. Thus the total foodgrains production was 107.8 million tonnes, 99.5 million tonnes, 94 million tonnes, 95.1 million tonnes and 74.2 million tonnes. With the expectation of yet another good crop in 1971-72, it is hoped that the foodgrains situation in the country would remain comfortable during 1972.

Although concessional imports of foodgrains were stopped effective from January 1972, some quantities originating out of purchases already made under past commitments are likely to be raised during 1972, according to the Annual Report of the Ministry of Agriculture (Department of Food), for the year 1971-72. A total quantity of 340,000 tonnes was imported during 1972 as at the end of March.

The general ban on export of cereals continued during 1971. However, a quantity of about 13,000 tonnes of super basmathi rice was exported through the State Trading Corporation of India during 1971. Besides, about 21,500 tonnes of pulses were exported through the National Agricultural Cooperative Marketing Federation.

TOBACCO CROP UP

The production of Flue Cured Virginia tobacco was of the order of 150 million kg. as compared to 100 million kg. in 1971. Out of 150 million kg. a quantity of 125 million kgs. has come to the market. Due to increased production there has been some depression in tobacco prices in the beginning of the season. The Government asked the State Trading Corporation to enter the tobacco market and purchase unsold quantities of tobacco from growers. STC has already purchased about 10 million kg. of tobacco.

India's present annual production of tobacco is in the region of 350,000 tonnes out of which flue cured Virginia tobacco accounts for 90,000 to 100,000 tonnes. The FCV variety's is the most imporant contribution to the bulk of country's exports. Annual average export of FCV tobacco is about 55,000 tonnes valued at Rs. 300 million to 350 million.

Indian tobacco is exported to more than 50 countries in the world. The principal markets for the unmanufactured tobacco are U. K., U.S.S.R., Arab Republic of Egypt, German Democratic Republic and Japan.

Export of Indian un-manufactured tobacco has expanded from the annual average of 30,000 tonnes, in 1953-55 to 55,000 tonnes in 1967-68. In 1970-71, the exports declined to 47,520 tonnes. Some of the factors which stand in the way of tobacco exports from India are the control by foreign governments on tobacco price support, regulation of production and sales abroad; tariff and quantitative restrictions, State Trading, mixing regulations etc. by the importing countries.

With a view to avoid unhealthy competition and in order to maintain the unit value, floor prices are fixed every year for the exportable varieties of tobacco. The tobacco exporters are allowed to import redrying machines, laboratory equipment, pest control equipment for handling leaf packages etc. There is a compulsory Agmark grading for quality control and preshipment inspection for tobacco.

OUTLOOK FOR SUGAR PRODUCTION

With a carryover stock of 2.1 million tonnes and production of 3.74 million tonnes, the total availability of sugar during 1970-71 reached 5.83 million tonnes registering an increase over 1969-70.

The production of sugar during the first five months of 1971-72 season (October 1971-February 1972) amounted to 2.32 million tonnes as against 2.4 million tonnes in the corresponding period of the previous year's season.

During 1971, a total quantity of 3321 tonnes of sugar was exported to U. K., U.S.A., Canada, Malaysia, Ceylon, South Vietnam and Uganda.

These exports were estimated to have earned foreign exchange of about Rs. 310 million. The area under sugarcane cultivation was 2.66 million hectares in 1970-71. To maximise sugar production a number of measures were taken such as granting of rebate and excise duty, suspension of forward trading in gur effective from October 18,1972 etc.

The installed capacity of the industry increased from 3.56 million tonnes during 1969-70 crushing season to 3.7 million tonnes in 1970-71. The Fourth Five-Year Plan envisages an output of 4.7 million tonnes by the end of the Plan i.e. 1973-74. To achieve the target an additional capacity of 965,000 tonnes was decided to be licensed. Accordingly, letters of intent/licences were issued in the three years 1969-1971 for the establishment of 44 new sugar factories (including 38 cooperatives) and expansion of 21 existing units in the various states of the country involving an additional capacity of one million tonnes thus raising the effective licensed capacity of the sugar industry to 5 million tonnes. It was decided to further raise the licensed capacity to 5.3 million tonnes.

POWER AVAILABILITY

AN OUTLOOK

The installed power generating capacity in India is likely to be raised to 41.5 million kw. by 1978-79, according to the preliminary proposals drawn up by the Ministry of Irrigation and Power for the Fifth Five-Year Plan endidg 1978-79. The proposals envisage construction of additional 37.45 circuit kilometres of transmission lines, electrification of 131,000 more villages and energisation of 2.5 million pumps.

An important objective during the Fifth Plan would be the removal of regionwise and statewise imbalances in power development and a reduction in the disparity of tariffs prevailing in the various power systems.

The addition of 21.8 million kw. to the generating capacity during the Fifth Plan would comprise 6.7 million kw. from continuing Fourth Plan schemes, 7.8 million kw. from proposed extensions at developed sites, and 7.3 million kw. from new generation schemes. Of this, 11.8 million kw. would be thermal power, 1.4 million kw. nuclear and 8.6 million kilowatts hydro-electric.

A special feature of the transmission system envisaged during the Fifth Plan period is the establishment of a broad 400 kilovolt network to facilitate transmission of large blocks of power not only within the State but also across the State and regional boundaries. This would facilitate the ultimate realisation of an all-India power grid. The distribution network to carry power to consumers has also been provided for.

PROGRESS IN ENGINEERING CONSULTANCY

A public undertaking under the Ministry of Petroleum & Chemicals, M/s. Engineers India Limited, provided engineering and consultancy services from concept to commissioning to a broad range of industrial projects both in the public and private sectors during the year 1970-71.

The Company, which was set up in March 1965, had a total turn-over of Rs. 27.76 million in 1970-71 as compared to the previous year's turnover of Rs. 18.29 million. During 1970-71, the Company was engaged in design engineering, equipment procurement and construction and supervision of the Haldia Refinery, Koyali Aromatics Project, Cochin Refinery Expansion and Coke Calcination Plant and L.P.G. bottling facilities at Barauni. The modernisation of LPG facilities at Barauni and the Coke Calcination Plant there had been completed.

During the year, the Company also provided a whole range of services for petroleum refineries, petrochemical and chemical plants, fertilizer plants, breweries, offshore engineering, ports and harbour engineering and non-ferrous metallurgical plants.

The Company also bid for jobs in the international market and secured contract for consultancy and construction services in respect of Shiraz Refinery in Iran. Since then the design engineering and procurement work of Shiraz Refinery had been completed.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

SELF REGULATING HIGH SPEED CHROME SALT

The Central Electro Chemical Research Institute (CECRI), Karaikudi, have developed a process for the manufacture of self-regulating high speed chrome salt formulation.

Chromium plating is being carried out in several major electro-plating institutions in India and abroad to meet requirements such as corrosion resistance, wear resistance, abrasion resistance, low co-efficient of friction and non-wettability to certain sticky materials. A majority of industries employ chromium plating, either decorative or hard chromium, to meet their demand.

In its investigations, aimed at import substitution, the CECRI developed a catalyst-additive mixture. Added with chromic acid, this gives the modern SRHS chrome bath which has a performance similar to baths made from imported salt.

The process is available with the National Research Development Corporation of India.

PROCESS FOR ELECTROLYTIC REDUCTION

A process for the manufacture of Electrolytic reduction of 3-nitro-p-cresol to 3-amino-p-cresol has been developed at the Central Electro Chemical Research Institute (CECRI), Karaikudi.

Used as a starting material for the manufacture of optical whiteners and as a dye intermediate, the 3-amino-p-cresol is not known to be produced in the country. The entire demand, estimated at about 30 tonnes per annum, is met by imports.

The usual method of preparaing 3-amino-p-cresol is the chemical reduction of 3-nitro-p-cresol with iron dust and hydrochloric acid. However, by this method, the product isolation is not easy and efficiency of reduction is much less compared to electrolytic reduction. The C.E.C.R.I. has investigated a technique by which 3-amino-p-cresol can be prepared in an advantageous way by the electrolytic reduction of 3-nitro-p-cresol using rotating electrode. The electrochemical method has the specific advantages of facilitating easy reduction, a higher efficiency and easier product isolation.

STATE TRADING IN INDIA—SOME FACTS

Indian Government's policy is to increase progressively the role of state trading agencies in the import and export trade of the country. The principal state trading agencies are the State Trading Corporation of India (STC), and the Minerals & Metals Trading Corporation of India (MMTC). The STC has four subsidiaries, namely, the Handicrafts & Handlooms Export Corporation of India Ltd., the Indian Motion Pictures Export Corporation of India Ltd., the Cashew Corporation of India Ltd.. and the Projects & Equipment Corporation of India Ltd. The Handicrafts and Handloom Export Corporation specialises in the export of handlooms, especially fashion wear and costume jewellery and handicrafts; and the Indian Motion Pictures Export Corporation looks after the export of films. The Cashew Corporation Ltd., has been set up to arrange the import of raw cashew nuts for the cashew industry. The Projects and Equipment Corporation of India participates in internationnl tenders and specialises in larger ventures and turnkey projects concentrating in the field of railway systems, public utilities, industrial plants and projects, castings, forgings and ancillary equipment.

Another Corporation, namely, the Cotton Corporation has been created for specialising in export of and import and distribution of raw cotton. Jute Corporation of India is yet another organisation created for specialising in export of jute and jute goods and Tea Corporation of India is to organise export of packaged tea. Some other state agencies which are entrusted with imports and exports are Hindustan Steel Ltd., Metal Scrap Trading Corporation, Indian Oil Corporation, Central Silk Board and Indian Dairy Corporation.

The state agencies are now handling about 70 per cent of import trade and over 10 per cent of export trade of the country.

During 1971-72, the State Trading Corporation of India (STC) handled imports worth Rs. 1730 million and exports Rs. 730 million. In the same year the MMTC handled Rs. 1800 million worth of imports and Rs. 970 million worth of exports. The Project Equipment Corporation exported equipment worth Rs. 170 million and imported Rs. 260 million worth.

The items whose import is canalised through State Trading Corporation are as follows : Raw Manila Hemp (fibre), raw sisal fibre, graphite electrodes, graphite anode, sodium nitrite, aniline oil, benzidine dihydrochloride, naphthionic acid/sodium naphthionate, beta naphthol, copra, hops, gum arabic, mutton tallow, soyabean oil, palm oil, sulphadimidine (sulphamethazine), amido pyrine, analgin, phenobarbitone, piperazine and its salts, folic acid, streptomycine sulphate. tetracycline base and tetracycline hydrochloride, thiamine mononitrate and hydrochloride (Vitamin BI), riboflavine (Vitamine B2) and riboflavine 5-phosphate sodium, chloramphenicol powder, chloramphenicol palmitate and chloramphenicol succinate; sulphathiazole, sulphadiazine, erythromycine estolate erythromycine stearate and erythromycine ethyl succinate; chloroquine, iodine, citric acid of pharmacopoeial grade; tartaric acid of pharmacopoeial grade; cresylic acid of pharmacopoeial grade, tetanus antitoxin, 30 mm raw stock (whether black or white or colour) excluding sound negative; graphite, peppermint oil (mentha pep). citronella oil, synthetic rubber, nylon yarn and thread other than industrial nylon yarn, polyster filament yarn (except polyester filament yarn having a diameter range of 40 microns to 210 microns for manufacture of surgical sutures); x-ray films, empty hard gelatine capsules, ammonium nitrate-technical grade, amyl and iso-amyl alcohol, aluminium fluoride, cresylic acid, caprolactum, crude borate mineral, C6-C12 alcohols for plasticisers, such as octanol/iso-octanol/alfol, alfanol; cyno pyride, citric acid, calcium carbide, dodecyl benzene, D.M.T. dinitrochloro benzene, dimethylamine, endrin (insecticide), formic acid, iodine, meta aminophenol, melamine pura, methanol technical, methyl ethyl ketone, mono-methylamine, nitrocellulose chips/nitrocellulose other than 15-20 seconds viscosity; pentaerythritol, potassium chloride (industrial grade), pyridine base and pyridine technical, phosphorous (red), sodium cyanide, tartaric acid, trimethylamine, urea (chemical grade), vinyl chloride, caustic soda, soda ash, ortho-xylene, para-xylene, titanium dioxide, lithopone, sodium nitrate, corkwood, rayon wood pulp, raw wool/wool tops, rough blanks other than bifocal blanks, cellulose acetate flakes, cellulose acetate sheets/films, cellulose acetate butyrate and cellulose acetate propionate, cellulose nitrate sheets and flakes, methyl methacrylate monomer, polyvinyl chloride resin powder, P.V.C. composition including moulding powder (low density), acylic resin, sulpha-guanidine, cryolite, all synthetic non-cellulose fibres including polyester fibre, polypropylene, nylon moulding powder, and A B S moulding powder.

The Minerals and Metals Trading Corporation looks after the import of copper scrap whether ingotted or otherwise, lead ingot, pig and scrap, zinc or spelter unwrought in the form of ingots, cakes, tiles and slabs; zinc granulations and dust, tin block and tin scrap, copper, unwrought in the form of ingots, blooms, slabs, cakes, tiles, bricks, billets, cathodes, blister bars, electrolytic wire bars and ingot bars; nickel virgin/nickel scrap; aluminium (E. C. grade), palladium, platinum, cobalt, bismuth, cadmium, refractories and refractory material, mercury, high grade manganese ore, antimony ore, tungsten ore, high grade molybdenum ore, titanium ore, non-processed elemental/non-refined recovered sulphur, rock phosphate, muriate of potash (potassium chloride other than industrial grade), sulphate of potash, sulphate of ammonia, urea (fertillizer grade), asbestos, raw; fluorspar (acid grade), ferro-molybdenum, ferro-tungsten, ferro-vanadium, ferro-phosphorous, ferro-silinium, ferro-cobalt, ferro nickel, ferro aluminium and silico aluminium, ferro silico zirconium, ferro boron (including stabilised ferro boron with aluminium and titanium like grainal or batsally), ferro columbium (niobium), ferro chrome (containing 0.03 per cent of less carbon or nitrogen bearing), ferro manganese (containing less than 0.05 per cent carbon), ferro titanium (containing less then 1 per cent aluminium), ferro alloys in powder form

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(except ferro-titanium) for welding industry only, all mild steel, and high carbon steel semis, including ingots, blooms, slabs and billets; stainless steel sheets, plates and strips in cut length or in coils; cold rolled grain oriented electrical steel sheets, and strips either in cut lengths or in coils.

The Cotton Corporation of India Ltd., Bombay are authorised to import raw cotton and poly nosic fibre (cellulose staple fibre).

Likewise, the Cashew Corporation of India Limited import cashew nuts, Indian Dairy Corporation imports skimmed milk powder and Central Silk Board raw silk.

The items that are canalised for import through Hindustan Steel Ltd. are nickel virgin/nickel scrap, refractories and refractory material; all mild steel, high carbon and alloy steel (other than stainless steel) wire rods in coils; all electrical steel sheets, strips other than cold rolled grain oriented, whether in cut lengths or in coils; all mild and special steel sheets, strips and skelp in both hot rolled and cold rolled either in cut length; all-mild steel and special steel plates including ship building quality, boiler quality and chequered plates, whether in cut lengths or in coils; all prime tin plates including open top sanitary can quality; tin plate waste tin plate secondaries.

The items that are canalised through Indian Oil Corporation are petroleum jellies, paraffin wax, micro-crystalline wax, kerosene oil and base lubricating oils. The Metal Scrap Trading Corporation imports heavy melting scrap.

The items canalised for export though State agencies as follows :

The State Trading Corporation exports dried fish other than prawns, shark fins, fishmaws, beach-de-mere and Bombay ducks; human hair, wigs and wiglets and other articles made partly or wholly of human hair; cellulose art silk fabrics, nylon fabrics, lemongrass oil, kuth, salt, all sorts; footwear, uppers of which are made wholly or partly of leather; cement, knitwear (woollen and mixed), vintage cars i.e. motor cars of 1940 and earlier models; castor oil.

Minerals & Metals Trading Corporation exports iron ore other than ore of Goan origin; manganese ore (except ore produced/acquired by Manganese Ore (India) Ltd., coal and coke (certain grades), ferro-manganese and ferro-manganese slag and bauxite.

Metal Scrap Trading Corporation Ltd. exports ferrous scrap, cast iron boring; No. 2, 2 & 3 quality sheet cuttings; detinned scrap, steel skull scrap, iron skull scrap, mild scale scrap; tool and alloy steel scrap, other than stainless steel scrap; other varieties of ferrous scrap, such as silicon sheets, cuttings and punchings, broken/discarded chilled rolls, rejected castings scrap (other than cast iron scrap), broken, semi-broken ingot moulds and bottom plate scrap, defective slabs, etc; heavy melting scrap, stainless steel scrap, defective billets/billets scrap; scrapped and unserviceable rails; No. 1 quality sheet cuttings and punchings and mild steel tunings and borings, and re-rollable scrap.

Handlooms and Handicrafts Export Corporation looks after the export of handloom fabrics of the variety commonly known as "Bleeding Madras" and Garments made out of "Bleeding Madras". ☐

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ART SILK FABRICS ACTIVE IN EXPORT TRADE

Nearly 25 million metres of synthetic fabrics were exported from India at a value of over Rs. 17 million during 1971. Compared to the previous years' record at 18 million metres worth Rs. 46.5 million, the 1971 export performance in the line registered a 53 per cent improvement in terms of value and a 39 per cent rise in quantum. The average unit value of export too has gone up to Rs. 2.85 per metre in 1971 from Rs. 2.58 per metre in 1970.

The African markets absorbed as much as 44 per cent of the synthetic fabrics exports during 1971. The percentage intake of the Asian continent was around 27. The intake of the American region was valued at Rs. 11.7 million while that of Europe Rs. 5.08 million.

M/s. Baroda Rayon Corporation Limited, Apollo Street, Fort, Bombay, supplied overseas Rs. 1.45 million worth of art silk fabrics in 1971. Their major item of production, however, is viscose filament yarn. The company have recently received a letter of intent for increasing rayon production capacity from 3000 tonnes to 6380 tonnes per annum. They have plans to set up a cellophane paper plant as well as a nylon tyre cord plant.

In India, there are nine units engaged in the manufacture of rayon and acetate filament yarn. Two units produced rayon staple fibre with a production capacity of over 70,000 tonnes per year. Additionally, there are three untis for the manufacture of rayon tyre cord. Licensed capacity of viscose filament in 1970 was of the order of 40,500 tonnes and actual production was 36,705 tonnes.

EXPORT TRADE IN NAPHTHA

Nearly 90 million kg. of crude solvent naphtha was exported to Japan in 1970-71. The foreign exchange earned by the supplies was over Rs. 11.18 million.

The Madras Refineries Ltd., 122-D, Mount Road, Madras, have exported during July 1970 and June 1971 about 135,625 tonnes of naphtha earning foreign exchange of $ 2.29 million.

During 1970-71, the second year of its operation, the Madras Refineries processed 2.90 million tonnes of darius crude, achieving a throughput of 84 per cent of the installed capacity. Their asphalt production increased from the designed capacity of 3.23 per cent to 6.4 per cent of crude throughput.

OVERSEAS SUPPLIES OF BORIC ACID

With Bulgaria, Arab Republic of Egypt and Malaysia as the top importers, India's export earnings from boric acid during 1970-71 was of the order of Rs. 0.36 million (282 tonnes). Bulgaria's purchases were 100 tonnes valued at Rs. 0.22 million while Arab Republic of Egypt imported 86 tonnes at a price of Rs. 0.20 million. Over 67 tonnes of the acid was purchased by Malaysia at Rs. 0.10 million in the same year. Other importers were Ceylon, Jamaica, Kenya and Thailand.

In the first nine months of 1971-72 (April-December 1971) over 177 tonnes of the acid was sold abroad at a value of Rs. 0.26 million, with Singapore as the major importer.

Messrs. Borax Morarji Ltd., 195, D.N. Road, Bombay exported 226 tonnes of borax and 186 tonnes of boric acid together valued at Rs. 420,000 during 1971.

The company manufactures borax and boric acid, their derivatives, by-products and compounds. Their installed capacity is 17,000 tonnes per annum for borax and 3000 tonnes of boric acid. They have plans to manufacture anhydrous borax too.

The company has developed a process for the manufacture of boric acid SQ grade required for electronic industries which would save foreign exchange. The import value of the acid of this grade during 1970-71 amounted to Rs. 48,100 (12000 kg), the major supplier being Japan.

CABLES TO U.S.S.R.

As a sequel to the visit of a Soviet Delegation to India sometime ago, an Indian firm has recently received an order for the export of 250 kilometres of HT paper insulated aluminium conductor cables to that country.

The Bombay firm that received the order, M/s. Siemens India Ltd., 134 A, Dr. Annie Besant Road, Worli, Bombay 18, has already shipped half of the order received and the balance is expected to be completed by October 1972.

The firm has also received orders from Kuwait for the export of special Heat Resistance Cables and from Iraq Port Administration for L.T. Paper Cables.

In the past, the company have exported cables to Australia, Hong Kong, Iran and Singapore.

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FOREIGN EXCHANGE FROM FILMS

The Indian Motion Pictures Export Corporation, 5th Floor, 'D' Building, Shiv Sagar Estate, Bombay, exported 37 films during 1970-71 at a value of Rs. 3.05 million. The film which fetched maximum earning was 'Mera Naam Joker' at a value of Rs. 1.5 million. The film was supplied to Singapore, U.S.S.R., Peru and Canada. Next in importance was the film 'Pushpanjali' which was exported to U.K. at a value of Rs. 0.49 million. Another film 'Aradhana' netted Rs. 0.23 million from U.S.S.R. and Burma. The Soviet Union imported 'Bandhan' at a cost of Rs. 0.14 million and 'Pratidwandhi' at a cost of Rs. 0.13 million.

Among the other importers were Singapore, Indonesia, Mauritius, Dubai, Tanzania, Canada, Nairobi, Peru, Suva, West Indies, U.S.A., Finland and Fiji.

STEEL FOUNDRY TO CEYLON

The Projects and Equipment Corporation C/o State Trading Corporation of India, Chandralok, Janpath, New Delhi-1, has secured an export order from Ceylon for the design, manufacture, supply and installation of plant and machinery for a steel foundry at an approximate value of Rs. 1.5 million. Additionally, equipment is to be supplied to Ceylon over a period of 15 to 18 months.

The project will be undertaken in collaboration with M/s. New Standard Engineering Co. Ltd. of Bombay.

EXPORT PERFORMANCE AND POTENTIAL

INDIA'S EXPORT EARNINGS UP

The first three quarters of 1971-72 have witnessed uptrend in India's export trade. In the period April-December 1971 the export value stood at Rs. 11900 million as against Rs. 11397 million in the corresponding period period of the previous year.

The areas that have contributed to the rise i the export performance are marine products, fruits an vegetables, sugar and honey, tea, tobacco and manu factures; oilseeds, oil nuts, oil kernels; wood lumbe and cork; raw cotton, crude fertilizers, chemical ele ments and compounds medicinal and pharmaceutica products; esssential oils, purfumery and cosmetics explosives and pyrotechnic products, leather anc lether manufactures, rubber manufactures, textile yarn fabrics and made up articles; pearls, precious and semi-precious stones; rails and railway track construction material, wire products, hand and machine tools, household equipment, base metals, metal manufactures, power generating machinery, office machines, metal working machinery, electric power machinery and switchgears, equipment for distributing electricity, telecommunication apparatus, domestic electric equipment, road vehicles other than motor vehicles, sanitary fixtures, knitwear; scientific, medical, optical, measuring and controlling instruments and apparatus; printed material etc.

Categorywise, food and live animals fetched Rs. 3198 million as against Rs. 3167 million. Beverages and tobacco improved to Rs. 378 million from Rs. 269 million. Inedible crude materials, however, wistnessed a drop from Rs. 1863 million to Rs. 1676 million. The decline in exports in this category was due to the lower offtake, mainly iron ore and concentrates and coal. The export of mineral fuel lubricants and related materials also fell in the period reviewed mainly because of the decline in the offtake of coal and petroleum products. The chemical section recorded an even trend in export earnings. Although there was a substantial improvement in overseas supplies of organic chemicals, inorganic chemiccls, pharmaceuticals, and perfumery and cosmetics, the manufactured sector including leather and rubber manufactures, wood and cork manufactures, paper, textile fabrics, glassware, jewellery, iron and steel, metal manufactures was up in its export earnings from Rs. 4534 million to Rs. 5089 million.

In the machinery and transport equipment group, electrical machinery and appliances recorded a substantial imporvement from Rs. 119.85 million to Rs. 151.67 million, the major areas of improvement being electrical power machinery, equipment for distributing electricity, telecommunications, apparatus and domestic electric equipment. In the transport equipment group, however, the growth rate of exports was not much (although there was a marginal imporvement in the export value) due to the fact that the offtake of road motors and vehicles fell from Rs. 144.72 million to Rs. 85.75 million. However, the export earnings of railway vehicles shot up from Rs. 37 million to Rs. 57.20 million.

Regionwise, the intake of the African continent in the first three quarters was Rs. 959.26 million as against Rs. 996.57 million in the corresponding period of the preceding year. The exports of North America rose substantially from Rs. 1726.6 million to Rs. 2401.9 million. U. S. purchases were up from Rs. 1510 million to Rs. 2067 million.

In respect of Latin America there was a doubling of Indian exports in the period reviewed at Rs. 105.45 million from Rs. 49.00 million. Argentina improved its imports in a major way from Rs. 14.21 million to Rs. 43.62 million. Chile and Peru too improved their imports.

The ECAFE region has, however, purchased less at Rs. 2937.53 million as against Rs. 3777.51 million. The decline was mainly due to the reduced pruchases of Japan (from Rs. 1536.4 million to Rs. 1341.46 million), Australia, Ceylon, and Burma.

In the East European region, U.S.S.R. improved its intake from Rs. 1578.6 million to Rs. 1634.35 million. In fact, the Soviet Union figures as major importer from India in this period next only to the U.S.A. In respect of Bulgaria, Czechoslovakia and Hungary too there were rises in their intake.

Among the European Common Market countries which absorbed Rs. 871 million as against Rs. 733 million, Belgium, France, West Germany, Italy and Netherlands have all improved their intake. Among the European Free Trade Area countries there was a drop in the purchases of United Kingdom from Rs. 1374 million to Rs. 1287 million.

POTENTIAL OF INDIA'S EXPORT TRADE

"India today fulfills the essential requirements for achieving a major breakthrough in her exports. In this respect non-traditional exports, particularly engineering goods have a special role and responsibility in o far as the bulk of the future growth of our exports must be provided by these sectors," stated India's Foreign Trade Minister, Mr. L. N. Mishra. During the last few years a stable institutional framework has been created for the promotion of exports. The country's economic structure is much more broadbased now than ever before so that the product-mix offered to the overseas markets can be greatly diversified. Besides, the reservoir of technological and managerial skills, including an undertaking of techniques of international marketing has greatly expanded in India in the last ten years.

The year 1971 was full of uncertainties and abnormal developments. There was, first of all, a series of international monetary crises which greatly disrupted the exchange markets all over the world. There were also shortages of some critical inputs for exports. No export order would be allowed to fall through for want of raw materials like steel, Minister assured. Subject to over-riding national considerations, "I am determined to remove all barriers which stand in the way of increased exports".

Referring to the international credit mechanism which is essentially a political mechanism wherein creditors are generally in a much stronger bargaining position than borrowers, the Minister stated that "If India's ability to pursue genuinely independent domestic and foreign policies is to be preserved and enhanced, we must ensure that in the years to come we can meet the bulk of our import requirements through export".

He further stated that by judging by the recent experience at UNCTAD III "developing countries can no longer take for granted that rich countries would be willing to provide them more aid to overcome their balance of payments difficulties. At the UNCTAD III we saw the most powerful developed country of the west, namely, the United States, openly stating its lack of faith in any quantitative aid target for developing countries. This is despite the fact that the various United Nations forums have during the last ten years reiterated many times that the developed countries must transfer one per cent of their gross national product (GNP) to the developingc ountries as development assistance. The one per cent target is no where being achieved. The developing countries must therefore learn to raise themselves. The export drive must constitute the most improtant constituent of national strategy for the attainment of self-reliance", said the Minister.

In sharp contrast to the attitude of the Westren countries, Mr. Mishra stressed that the the U.S.S.R. Government is taking an atitude helpful to India's export drive. There is great scope for export of engineering goods to the U.S.S.R. which can be doubled or even trebled, if their requirements and specifications can be met. Describing the U.S.S.R. as a great consumer market of every thing, 'more specially for engineering goods', the Foreign Trade Minister said that by overcoming the raw material shortages, India can step up the sale of engineering goods to the Soviet Union.

RAILWAY WAGONS AND EXPORT TRADE

During 1971-72, India-made railway wagons were exported to Hungary, Poland, Kenya, Sudan and Ghana.

The value of orders received from Hungary is Rs. 58.5 million, out of which actual supplies made during 1971-72 were estimated at Rs. 11.32 million. To Poland, the supplies effected during the last year were at Rs. 1.42 million while the value of orders received from that country is Rs. 27 million. Orders received from Kenya, totalled Rs. 12.3 million and also Rs. 1.26 million worth of wagons were effected during 1971-72. Nearly Rs. 3 million worth of wagons have been effected to Ghana. The value of orders suppiled to that country is Rs. 6.7 million. To Sudan, actual supplies during the year were estimated at Rs. 3.7 million out of total export order of Rs. 9.5 million.

Thus, the total value of orders for the supply of railway wagons received during 1971-72 was Rs. 114.5 million of which actual supplies effected during the year are estimated at Rs. 20.66 million.

FOOD STUFFS AND EXPORT PROSPECTS

Indian processed and preserved food products have fared far better in the export market in 1970-71 compared to the previous years. The export value was Rs. 154.58 million as compared to Rs. 116.28 million in 1969-70, Rs. 93.20 million in 1968-69 and Rs. 60.43 million in 1967-78.

Wide scope awaits Indian supplies abroad for dehydrated food stuffs. A good beginning has already been made in India by introducing some of the products like dehydrated vegetables, soup mixes, (vegetarian and non-vegetarian) instant ready mix products for quick preparation of some of the popular Indian dishes, like idli, dosa, vada. jalebi etc. A plant is being set up in Bombay to dehydrate whole eggs to manufacture egg powder. The Defence Ministry has also set up a freeze drying plant to dehydrate animal foods like mutton, chicken, etc. A chain of new plants has been installed to handle fruits and vegetables on a large-scale. Among other dehydrated varieties which India is in a position to supply abroad are white dehydrated onions, dried grapes (raisin), dehydrated peas, dehydrated mushrooms etc.

A Rice Process Engineering and Technology Training Centre has also been set up by Government with a view to promote food preservation.

The Food and Nutrition Board which was set up 8 years ago has to its credit pioneering work in developing new sources of protein from groundnut for human consumption. A unit of the Board engaged in pre-cooked weaning food, by utilising vegetable proetin is collaborating with M/s. Amul Dairy.

Another unit of the Board for processing maize into various food products is under consideration and one more for processing of soyabean is also to come up shortly.

RECORD CARDAMOM EXPORTS

Cardamom exports touched an all time record of 1,972 tonnes valued at Rs. 112.4 million in 1970-71.

In the first nine months of 1971-72 (April-December 1971), cardamom exports amounted to 1419 tonnes valued at Rs. 55.88 million.

Kuwait, Saudi Arabia, Quatar and Trucial Oman are the major importers accounting for nearly 70 per cent of India's export. India is also exporting to the U.S.S R. (seven per cent) and Japan (five per cent).

The country's cardamom production in 1971-72 totalled 2,800 tonnes.

Mysore has the largest area under cardamom, with more than one-fourth of the total 81,566 hectares under the crop in the States.

ENQUIRIES FOR BASIC CHEMICALS AND PHARMACEUTICALS

Pursuant to the visit of a Study-cum-Sales Team to the U. K., France, West Germany, Belgium, Netherlands and Switzerland under the auspices of Basic Chemicals, Pharmaceuticals and Soaps Export Promotion Council, 'Jhansi Castle', 4, Cooperage Road, Bombay-1, several enquiries have been received for a variety of Indian products.

Two firms from the Federal Republic of Germany, evinced interest in the import of a large quantity of benzidine di-hydrochloride. They are interested in improting from India direct dyes derived from benzidene, B.O.N. acid, anthraquinone and lamino anthraquinone, H acid, J acid, Gamma acid Diaminostilbene disulphonic acid etc.

The enquiries received from Netherlands were for Benzidene di-Hydrochloride, Di-nitro, & di- aminostilbene disulphonic acid, Tobias Acid, Naphthol As-SW, 3-nitro-4-aminoamisole, 3 : 3 dichlorobenzidine di HCL: 4 nitro-2 amio-phenol, 4 nitro-2-amino-phenol-6 sulphonic acid Na salt, 6-chloro-4-nitro-2-amino phenol anthraquinone and 1 amino anthraquinon as also flame retarding finishes for textiles and all dyes on exclusive basis and rhodamine.

U. K firms are interested in purchasing from India chrysophenine, benzoic acid, oxalic acid, metanilic acid, benzidine di-Hcl; agricultural chemicals, meta amino phenol, cresotinic acid, intermediates and pigments, fast colour salts and chrome yellow pigments for paints.

France had shown interest in the import of anthraquinone derivatives, diaminostilbene disulphonic acid etc. pigments for ceramics and fluorescent pigments and synthetic camphor.

Six Belgium firms are desirous of importing acid dyes, food colours, sulphur dyes, Nephthol AS-SW, Malaelute Green, chlorinated paraffin, solubilized, vats, saccharine, manganese salts, napthionic acid, aniline oil, meta aminophenol and intermediates, industrial chemicals, insecticides and drugs.

SOVIET UNION TOPS CHEMICAL PRODUCT MARKETS

With an intake value of Rs. 4.06 million, the Soviet Union topped the list of importers of chemicals and allied products exported from India during 1970-71. The Soviet Union's purchases of these products in the preceding two years, namely, 1969-70 and 1968-69 were Rs. 30.6 million and Rs. 18.9 million respectively. India's total exports in the line were of the order of Rs. 404.51 million in the same year.

Enamel wire was the major item exported to the Soviet Union at a value of Rs. 17.61 million. Synthetic enamels were the next important area of Indian export to that country at Rs. 9.72 million. Rubber gloves fetched Rs. 5.41 million and automobile tyres and tubes Rs. 5.1 million. Vacuum flasks and refils have also been prominent in the export trade, to the Soviet Union. Among other chemical and chemical based products supplied to that country by India are ready mixed paints, ceramic products, printed materials including books and publications and plywood and plywood products.

Exports of chemicals and allied products to the entire East European region in 1970-71 were of the order of Rs. 80.42 million while to West Europe they amounted to Rs. 79.18 million. The Asian continent absorbed worth Rs. 153.47 million of which the share of West Asia was Rs. 61.49 million.

The African region purchased worth Rs. 65.20 million. North America imported these products at a value of Rs. 20 million of which U.S.A. alone absorbed Rs. 17 million worth of the products. The Latin America's intake was Rs. 2.45 million in 1970 71.

Countrywise, the Arab Republic of Egypt was the next best country of Indian chemical and allied products after the Soviet Union. The Egypt imports during the year reviewed were valued at Rs. 40.45 million. U.K. happend to be the third best market at Rs. 30 million while Nepal and Yugoslavia absorbed Rs. 22.4 million and Rs. 22.2 million respectively, according to the Chemicals and Allied Products Export Promotion Council, 14/1-B, Ezra Street, Calcutta-1.

TOURIST TRAFFIC IN 1971

Nearly 301,000 foreign tourists visited India in 1971 as against 280,280 during 1970. The tourist inflow would have been better but for the unwarranted aggression of Pakistan on the Indian borders later in the year and the monetary crisis affecting the Western countries. "India's potential for tourism is virtually unlimited" according to the Ministry of Tourism and Civil Aviation.

Tourist traffic to India in 1971 was adverly affected on account of incorrect and exaggerated reports that appeared in certain foreign newspapers to the effect that cholera had broken in an epidemic form and later due to the developments in the sub-continent culminating in Pakistan's aggression against India. The improvement in tourist traffic despite such reports is indeed encouraging.

The Tourism Department is making a sustained and planned effort for its development and promotion. Integrated development projects are designed to attract a large volume of tourist traffic to India with emphasis being laid on the development of tourist resorts. Since skying in the Himalayas, in Gulmarg would be an attraction, an important integrated development project is being set up around the Gulmarg complex. To show the keenness of foreign tourists, the Kovalam beach is being developed. It is also proposed to take up work at Goa. Recently a 500 metre long chair lift was installed at Gulmarg. With these and other tourist development projects such as hotel development, of sanctuaries, facilities for skiing etc, it is hoped that tourism continues to net in increasing foreign exchange earnings in the country.

INTERNATIONAL ECONOMIC COOPERATION

TRADE AGREEMENT WITH PERU RATIFIED

Instruments of Ratification of India-Peru Trade Agreement were recently exchanged between India's Minister of Foreign Trade and the Ambassador of Peru in India. With the exchange of Instruments of Ratification, the Trade Agreement between the two countries, signed in November last, has come into force.

This is the first trade agreement between the two countries and is an expression of their desire to usher in a new era of economic and trade cooperation between them. It marks also a step forward towards a more effective utilisation of complementary resources of the respective countries.

Minerals and Metals Trading Corporation's recent three years contract for the import of 54,000 tonnes of copper from Peru is one of the examples of the mutual desire for trade expansion embodied in the Trade Agreement.

Trade between India and Peru has so far been on a small scale. Exports from India to Peru during the period 1967-71 averaged Rs. 6.3 million and imports Rs. 21.0 million per year. India chiefly exports jute goods to Peru and imports raw cotton.

There have been encouraging signs of expansion in the two-way trade with Peru following the signing of the Agreement in 1971. During 1971-72, trade is estimated at Rs. 30 million. The major items of India's exports to Peru are jute goods, cycle tyres and tubes, shellac etc. The main items of import are raw cotton and antimony ore.

With the coming into force of the new trade agreement, trade exchanges between the two countries are expected to expand and diversify further. Besides cotton and antimony ore, India is likely to import copper, zinc, lead, tungsten etc. and export, apart from the traditional goods, a wide range of industrial items, such as bicycles and parts, handtools, wire ropes, mining machinery, textile machinery, railway and telecommunication equipment etc.

It is also expected that the two countries would cooperate in setting up joint industrial units and joint shipping lines to their mutual advantage.

The Trade Agreement provides for reciprocal extension of most favoured-nation treatment by the two countries in matters of trade and tariffs. It also provides for the exchange annually of lists of goods in which the two countries are specially interested and for periodical consultations for the harmonius development, diversification and expansion of trade between the two countries. The Agreement shall remain in force for a period of three years and thereafter for successive periods of one year at a time.

SOME DECISIONS AT UNCTAD III

At the third United Nations Conference on Trade and Development (UNCTAD III), India called for urgent action to be taken by the international community to liberalise the trade in commodities and manufactured items of export interest to developing countries. India also urged for a reform of international monetary system so that it became more responsive to the needs of developing countries. In concert with other developing countries India also made a number of recommendations in the field of flow of financial resources to developing countries, shipping, action for the least developed among developing countries including land-locked countries, trade-relations among countries having different economic and social systems and trade expansion and economic cooperation among the developing countries.

As a result of the action taken by India and other developing countries in group of '77', certain important decisions were taken at the Conference. For example, a special session of the Committee on Commodities will launch inter-governmental consultations on specific commodities so that international agreements and arrangements are forged in respect of them as soon as possible. In regard to manufactures, inter-governmental consultations for removal of non-tariff barriers, have been provided for. The developed countries have been urged to implement and improve upon their offers under GSP. On financing, UNCTAD's role as well as the part to be played by developing countries in the reshaping of the international monetary system have been emphasised. Certain improvements in the flow of aid, terms of aid, as well as untying of aid have been agreed upon. For the first time, a code of conduct for Conference Lines has been drafted by the Group of '77' and presented to the developed countries. This code of conduct will be considered in a special conference which will be called by the U.N. General Assembly. A comprehensive resolution on the special measures to be taken on the least developed countries as well as the land-locked ones among them has been adopted. The UNCTAD agreed unanimously to develop the trade between countries having different social and economic systems. The countries in the Eastern Europe have undertaken important obligations for expanding their trade with developing countries. The developing countries have also agraed to cooperate among themselves to expand their mutual trade.

When the resolutions adopted at UNCTAD are fully implemented, it is expected that in due course the developing countries will have a greater say in the decision making process of the international community on important economic matters than hitherto. Further, as a result of the progressive relaxaton and eventual elimination of barriers affecting their trade, facilities would become available for the external trade of the developing countries to expand. In addition, the improvement of commercial infra-structure like shipping and insurance would also encourage the expansion of the trade of developing countries. The improvement in the volume and terms of flow of external financial resources would help in the acceleration of the economic development of developing countries. Thus in due course the developing countries would be able to fulfil the concept of self-reliance and international cooperation.

U.S. LEGISLATION FOR GSP

As a result of the delay in the enactment of law by the U.S.A. to implement the Generalised System of Preferences, it is estimated that, India's exports worth about Rs. 290 million to that country (on the basis of 1970-71 statistics) have been deprived of the benefit of duty-free treatment under GSP.

INDIAN EXHIBITION IN FIJI

Government of India are to organise a wholly Indian Exhibition in Suva (Fiji), in October 1972. The central theme of the Exhibition "India on the Move", will attempt to project achievements of the Indian economy since independence.

A wide range of Indian products of export importance is expected to be exposed in the event. The exhibits are to include machine tools, heavy engineering products, agricultural machinery, business machines and equipment, light electrical and engineering products, house-hold appliances, automobile parts, coir products, leather items, plastics, textiles including readymade garments, hadicrafts, medical instruments and full range of food products. The display is also to cover export prospects of consultancy services from India.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

PRODUCTION OF PETROLEUM PRODUCTS TO INCREASE

Government of India are taking steps to continually maximise production of middle distillates like kerosene, diesel oil etc., in the country in order to reduce dependence on imports.

The Ministry of petroleum and chemicals have plans to increase refinery capacity so that more petroleum products, particularly those which are costlier to import, are available within the country in larger quantities. Government had to import during 1971-72, 0.6 million tonnes of kerosene, 118,000 tonnes of high speed diesel, 158,000 tonnes of light diesel oil and 0.88 million tonnes of furnace oil. To bridge the gap between demand and production in the country, more refining capacity is being established and improvements are being made in the capacity of a number of existing public sector refineries.

A new refinery at Haldia in West Bengal with an initial capacity of 2.5 million tonnes per year is expected to go into production in 1973. Construction of another refinery with a capacity of 1 million tonnes will be undertaken shortly at Bongaigaon in Assam. A refinery with a capacity of 6 million tonnes is also proposed to be established in the North West region.

The refinery at Barauni, at present operating at a capacity of 2.2 million tonnes, will be expanded to 3.4 million tonnes by 1974. As an immediate measure, it is being expanded to 2.8 million tonnes capacity in the current year.

The 2.5 million tonnes Cochin Refinery is expected to have an additional capacity of 1 million tonnes by 1973. It is also proposed to expand the Koyali (Gujarat) refinery, currently operating at 3.75 million tonnes, to 5.5 million tonnes in the next five years.

As a result of these steps, the bulk of deficit between demand and production will be confined to the lower-priced products. Already the deficit has been largely transferred to furnace oil and naphtha. From the foreign exchange point of view, it is less expensive to import these two products than to import crude oil to produce them.

VEGETABLE OIL PRODUCTS
A REVIEW

The estimated production of oilseeds during 1970-71 was 11.09 million tonnes. Of this, the major share was that of groundnuts-in-shell whose output in the year was 6.07 million tonnes. The production of rapeseed and mustard was 1.96 million tonnes, cotton seed 1.64 million tonnes, sesamum seed 0.6 million tonnes, linseed 0.45 million tonnes, castor seed 0.13 million tonnes, cotton seed 1.64 million tonnes, safflower seed 0.15 million tonnes and niger seed 0.11 million tonnes, The total area under cultivation of the above oil seeds was estimated at 24 million hectares in 1970-71.

The 1970-71 production of oil seeds was an improvement over the previous year's output of 9.86 million tonnes.

Compared to the production of 5859 million nuts, in 1969-70 the production of coconut improved to 6078 million nuts in the following year.

During 1970-71, India's exports trade in oil seeds amounted to 27,270 tonnes valued at about Rs. 0.6 million. The export value of vegetable oils in the same year was Rs. 0.7 million (23,250 tonnes) of which castor oil exports were Rs. 0.59 million (15,460 tonnes). Other vegetable oils exported in varying quantities include ground nut oil, mustard oil, coconut oil and sesamum oil.

In 1970-71, export earnings of oil cakes were of the order of 878,510 tonnes valued at Rs. 5.54 million. The export of solvent extracted groundnut oil cakes alone contributed 674,580 tonnes valued at Rs. 4.54 million. Solvent extracted cotton seed oil cakes fetched Rs. 0.5 million, solvent extracted linseed oil cakes Rs. 0.2 million and other oil cake varieties Rs. 0.3 million.

During 1970-71 imports of soyabean oil amounted to Rs. 21.18 million. Other varieties imported were mustard seed, copra palm oil, sunflower seed oil, cotton seed oil, and other cattle, sheep, (goat fats unrendered).

Under the current policy, export of non-essential oil seeds such as castor seed, copra, cotton seed, linseed as also raw rice bran and ground nut oil cakes (expeller variety) is not normally allowed excepting on merit. Export of groundnuts other than H.P.S. variety and mustard rape seed are also not allowed. Export trade in de-oiled groundnut cake extractions is canalised through the Groundnut Extraction Export Development Association, Bombay.

During the licensing period October 1971-September 1972 exports of groundnut oil are allowed subject to a ceiling of 200 tonnes. The Export of coconut oil, cotton seed oil are not however allowed. In the licensing period April 1972–March 1973 exports of mustard oil and rapeseed oil are not allowed. The export of salad oil and castor oil have been canalised through the State Trading Corporation of India while that of de-oiled rice bran though the Solvent Extraction Association of India, Bombay.

PHARMACEUTICALS AND SURGICAL INSTRUMENT PRODUCTION

Marching towards self-sufficiency, India's drugs and pharmaceutical industry is well established, achieving record production of Rs. 3000 million during 1971. During the previous year, the production worth Rs. 2500 million had been recorded.

One of the important public sector undertakings, the Indian Drug Pharmaceutical Ltd., engaged in the production of drugs and surgical instruments has achieved increased turnover during 1971-72. All the three units in operation, the Antibiotics Plant at Rishikesh, the Synthetic Drugs Plant at Hyderabad and the Surgical Instruments Plant at Madras have improved their production performance during 1971-72.

The Antibiotics Plant at Rishikesh produced 117,000 milliards of antibiotics during 1971-72, registering increase of about 45,000 milliards over the production figures of 1970-71. The synthetic drugs plant also increased its production to 1039 tonnes during 1971-72, registering about 60 per cent increase over the production of 1970-71. The Surgical Instrument Plant at Madras produced about 0.56 million instruments valued at Rs. 4.6 million as against 0.42 million instruments, valued at Rs. 4.3 million produced during the corresponding period of the previous year.

The IDPL has further programme for expansion o production in the synthetic drugs plant and for stabilisation and improvement of production in the Antibiotics Plant at a total cost of Rs. 63.3 million.

PLAN FOR SUNFLOWER DEVELOPMENT

The Government of India have launched a Rs. 9.2 million crash programme for the development of sunflower in three Southern States-Andhra Pradesh, Tamil Nadu and Mysore. The programme envisages bringing of 350,000 hectares under sunflower cultivation by the end of 1973-74 of which 160,000 hectares would be brought by the end of 1972-73.

Under the programme, 80,000 hectares in Tamil Nadu and 40,000 hectares each in Andhra Pradesh and Mysore would be brought under sunflower during 1972-73 at an estimated cost of Rs. 6 million. The scheme forms part of the development programme for taking up in the country to increase the production of oilseeds of 10.5 million tonnes by 1974. About 350,000 tonnes of sunflower are expected to be produced by 1974 which will yield 122,000 tonnes of oil. The oil will be useful for the manufacture of Vanaspati. The oil cake can be used as cattle food.

Two Russian varieties of sunflower (EC 68414 and EKT) would be used in the Southern States. These would be short duration crops of 90-100 days and can be introduced as cash crops in multiple cropping pattern.

DRILLING FOR OIL IN OFF-SHORE AREAS

The mobile platform for oil drilling in the Bombay High area is due to be delivered to the Oil and Natural Gas Commission (ONGC) in Japan by September 1972 and is expected to reach Bombay port in November 1972. Drilling for oil in the Bombay port structures is likely to commence soon afterwards.

Meanwhile various preparatory steps have already been taken in connection with drilling in the area. Detailed seismic surveys to pinpoint locations for the first few wells have already been completed and the data pertaining to these surveys is also being processed.

A number of ONGC technicians have also been sent abroad for training off-shore work as part of the contract with an American firm, Oil International S.A., whose services would initially be used for one year for drilling in the Bombay High area.

Drilling for another well in the shallow waters of the Gulf of Cambay, off Aliabet islands, is under consideration Oil was struck in the first well drilled in Aliabet West structure in March 1971, but on testing it was found that it had no commercial significance. Drilling is now proposed in the Aliabet East structure.

FIRST INDIAN-BUILT FRIGATE COMMISSIONED

The first modern warship built in India, INS "Nilgiri", was commissioned on June 3, 1972 by Mrs. Indira Gandhi, Prime Minister of India, at Mazagon Docks, Bombay.

As pointed out by the Prime Minister in her address on the occasion, 'Nilgiri' is a symbol of the growing vitality of defence industries in the country. It was built in Bombay and equipped with the help of indigenous technicians. More than 50 per cent of the machinery and equipment that had gone into it was manufactured within the country.

The other five frigates, which are now being built in the Mazagon Dock are planned to have a far greater proporation of indigenous material.

As two of these frigates are already under advanced stage of building, the Mazagon Dock Authorities expect to complete the five frigates at the rate of one per year from 1974 to 1978.

SIXTEENTH AVRO DELIVERED

The Sixteenth HS-748 aircraft, popularly known as AVROs and built by the Kanpur Division of the Hindustan Aeronautics Limited was delivered to the Indian Airlines recently. Named "Kutab Minar", it is the second aircrart to be delivered during this year. Eight more AVROs will be delivered to the Indian Airlines Corporation (IAC) by 1973.

HS-748 which is a medium transport plane is powered by two Rolls-Royce turbo-engines manufactured at the engine division of HAL, Bangalore.

The HAL factory at Bangalore is now exporting Alouette body structures to Sud Aviation of France. The factory has also been supplying turbine blades to Rolls-Royce Ltd., in U. K. It is also manufacturing some sophisticated castings and forgings for the Gnat aircraft and delivery castings for the Orpheus 730 engines. These items were imported previously.

NEW INDIAN STANDARDS ANNOUNCED

The Indian Standards Instiution (ISI) have published Indian standard specifications for a variety of items recently. The items include varnish bonded glass-fibre braided rectangular copper conductors, paper covered aluminium conductors, piezo-electric filters from use in telecommunication and measuring equipment, regulators for automobile DC generators (dynamos) and carbon arc lamps for motion picture projection. The standard formulated in the paper covered aluminium conductors was in view of its increasing use for windings of electrical machines such as transformers, the standard for regulatoas for automobile generators covers 3 element regular known commonly as current voltage regulators and not the 2 element compensated voltage control regulators. Work on the formulation of standards for various cinematographic equipment was undertaken with a view to establishing acceptable levels of quality and performance as well as bringing out a degree of interchangeablity in these units.

The ISI have also published standard specifications for indented wire for prestressed concretes which covers the requirements for manufacture, supply and testing of indented hard drawn wire for use in prestressed concrete. The Indian Institution also standardised the practice for safeguarding against embrittlement of hot-dip galvanized iron and steel products by prescribing various factors that are responsible for causing embrittlement in steel products during galvanising process and the procedure to safeguard against them. The standard code of procedure has also been published for inspection of welds which covers the various stages of inspection and the methods that may be adopted in the process of welding. Steel ladders for ship's use is another area where the ISI specified standard for the material and dimensions of steel ladders. Standard specifiations for supporting straps used with ship's blocks has also been announced.

By prescribing the general constructional requirements, standard sizes, methods of testing and rating. and installation of self-contained drinking water coolers. For ring spanners the first revision of an Indian standard has been published covering the requirements of forged, double ended ring spanners of cranked, straight, angled and offset type provided with bihexagon or twelve slots in the ring. The sizes are suitable for use with bolts and nuts conforming to Indian sandards.

The range of dimensions, workmanship, finish, proof loading and marking also other requirements are announced for shackles. The ISI had also published the standard method of test for stress relaxation of gasket materials providing for a method of measuring the amount of stress relaxation at a stated time after compressive stress would by supplied.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

MICROWAVE DIODES DEVELOPED

Diodes for L.S.C. and X-Bands, equivalent to imported diodes of IN 21 and IN 23 series have been developed by the Solid State Physics Laboratory (SPL) New Delhi.

Of the many types of diodes, microwave silicon point contanct Diodes are essential componetns in radar installations and are commonly used in microwave communications. They are also used as important components for microwave test benches. These diodes are also used in applications like harmonic mixing, modulation, detection, probing and monitoring of microwave signals.

In India the microwave diodes are used air force, navy and army installations and civil aviation, telecommunication links etc. Some diodes are also needed for replacement of unserviceable diodes. India's all the above requirements are met through only imorts.

Point contact diodes are fobricated with two materials (i) silicon and (ii) tungsten wire. The silicon in the form of lapped and polished slices is heat treated, nickel plated, scribed and diced out for use in the assembly of diodes. The tungsten wire is cleaned, mechanically shaped and electrolytically etched and used in the assembly of the diodes. The brass parts needed should be fabricated properly to the required dimensional tolerance and silver plated. The ceramic spacers also should be fabricated to close tolerances and metallised at the two ends. The assembly of the diodes and their adjustment are the critical steps in the fabrication and depend upon the type of diode being fabricated.

The main starting materials needed are low resistivity boron doped silicon slice and split free tungsten wire. Besides, brass parts and ceramic spacers are also required.

Some of the main items of equipment, are, heat treatment furnace, crimping jig, electrolytic etching unit, assembly fixture, etc. which can be got fabricated indigenously. Items of equipment like curve tracer and microwave test bench may have to be imported. However, these facilities are availacle in some of the national laboratories and could be made use of.

The minimum capacity of a commercial plant as suggested by Solid State Physics Laboratory is 1,000 diodes per month. For such a plant, the outlay is estimated to be Rs. 160,000.

A STEP FORWARD IN ELECTRONICS

The National Physical Laboratory (NPL), Hillside Road, New Delhi have developed a process for the fabrication and reconditioning of cathode-ray tubes and TV tubes. This is stated to be a major breakthrough in India's electronics industry.

The process, perfected by the scientist of NPL, has been passed on to a Delhi firm for commercial production.

Cothode-ray tubes are a vital part of cathode-ray oscilloscopes and radar display system. Indian tubes will boost the oscilloscope manufacturing industry and generally help the electronic instrumentation industry.

TV tubes are also a special type of cathode-ray tubes. The NPL has batch-produced 9 inch, 12 inch and 16 inch TV picture tubes which will be suitable for use in low-cost portable TV sets.

Besides, the know-how will help in the reconditioning of picture tubes which have become unserviceable due to burnt heater, lower emission and poor vacuum.

PRODUCTION OF ALUMINIUM SULPHATE FROM CLAYS

A process for the manufacture of aluminium sulphate from clays has been developed at the Regional Research Laboratory, Jorhat.

Aluminium sulphate finds wide application in paper and textile industries and in the purification of water. Though bauxite is a good raw material in the manufacture of aluminium sulphate, large quantities of bauxite have to be processed for a desired amount of aluminium. For aluminium based industries in remote areas, bauxite has to be transported over large distances involving transportation bottlenecks and high costs.

To obviate these difficulties and manufacture aluminium sulphate from cheaper raw materials, investigations were carried out at the Regional Research Laboratory, Jorhat. The Laboraiory has successfully developed a process for making pure aluminium sulphate from clays locally available in plenty. Aluminium sulphate obtained by the RRL process has a minimum of 15 per cent alumina and less than 0.1 per cent iron. Aluminium sulphate obtained from clays is suitable for use in paper and textile industries.

NEW NON-CEREAL CROP VARIETIES

New varieties of non-cereal crop have been evolved by the Punjab Agricultural University, Ludhiana. These new varieties will be very much useful to the Indian farmers in multiple cropping.

The new varieties developed are, ground nut M-13, which gives yield ranging from 25 to 30 per cent higher than the conventional one. These are suitable for export because of very big kernels.

In addition, three varieties of tomatoes; keck-nith, Ageti and Punjab Tropic have also been evovled. These varieties provide higher yields and bigger fruit.

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READY-MADE GARMENT INDUSTRY

From small beginnings during the last world war, the ready-made garments industry has now grown into sizeable proportions with over 1,200 manufacturing units, both small and large. These units are estimated to consume about Rs. 650–700 million worth of fabrics of all type, cotton, woollen and synthetic to yield a total production value of over Rs. 1000 million.

The large and varied number of items produced by the industry include trousers, jeans, shorts, coats, dressing gowns and shirts of all varieties such as bush-shirts, sports shirts and dress shirts. The industry also turns out baby suits, warehouse coats, overalls, waiters' and attendants' uniforms and kitchen aprons. Garments produced for teenagers and children include sports wear, jumpers, buster suits, play overall, sun suits, shorts etc. For women, the industry produces blouses, jackets, skirts and slacks in floral and other colourful designs.

The industry is well organised. Most of the manufacturers possess the requisite technical know-how and use a wide range of modern machinery for various manufacturing processes such as cutting cloth and making button-holes. The introduction of industrial sewing machines has facilitated fast stiching. Some special machines are also available for stiching collars, cuffs, pockets etc.

As regards exports, from a meagre amount of Rs. 1.5 million in 1961, the textile fabrics clothing exports went up to Rs. 85 million in 1969-70. The export earnings on this account further increased to Rs. 117 million during 1970-71. The export of these clothings has reached a level of about Rs. 113 million during the first nine months (April-December) of 1971-72. The major items of export are cotton trousers for men and boys, men's other outer garments of cotton, wool and silk; woollen, cotton and synthetic fibre dresses for girls, and outer garments of silk and woollen dresses for woman. U.S.S.R. has emerged as the principal purchaser of readymade garments from India. Among the other main purchasers are such sophisticated countries as U.S.A. and U.K. followed by Sweden, Hong Kong, Nigeria, Kenya, Burma, and some West Asian countries.

A level of Rs. 110 million was reached during 1970 through exports of clothing from India. The readymade garment industry in India is comparatively new but its export performance is by no means small.

With a view to promote foreign exchange earnings in the line, the Goverment of India have centralised the export of garments of different fibre fabrics through the Cotton Textile Export Promotion Council, Bombay. The Council has set up a ready-made garments panel with 480 members on its rolls now, from among manufacturers/exporters. About 50 ladies manufacturing high fashion garments have also joined the panel and their garments are finding good markets abroad especially in the U.S.A. and Western Europe. Till recently India's exports of readymade garments consisted generally of traditional wear like shirts and slacks to U.S.S.R. Now, India has penetrated into Western markets in big a way. In 1970 out of a total export of Rs. 63 million worth of cotton germents, about Rs. 25 million were in the form of fashion garments to the West European markets inclusive of U. K.

To boost up the exports further in Western markets, a sheme has been evolved whereby manufacturers of readymade garments are permitted to import permissible type of fabrics for making into garments for export only. The garment would be manufactured-in-bond. The idea behind this scheme is to make available special varieties of fabrics, of cotton and synthetics, at international prices so that Indian garments' exports could compete better with other exporting countries in respect of price and quality. □

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ELECTRIC MOTORS TO FEDERAL REPUBLIC

Overseas supplies of electric motors from India during 1970-71 amounted to Rs. 10.81 million marking a notable improvement over the 1969-70 exports valued at Rs. 5.16 million. In the first three quarters of 1971-72, export trade in motors was valued at as much as Rs. 8.20 million.

Exports of parts and accessories fetched Rs. 264,000 in 1970-71 and Rs. 3.22 million in 1969-70. Of the 22,740 motors exported in 1970-71, German Federal Republic alone accounted for an intake of 7328 motors valued at Rs. 5.34 million. Arab Republic of Egypt purchased motors worth Rs. 1.33 million. Countries like Malaysia, Singapore, Sudan, U.K. and Viet Nam Republic are the other major importers of Indian electric motors.

The headway made by Indian electric motors in the West German market has again been established by a recent order valued at Rs. 10 million received from that country. The order has been secured by M/s. NGEF Limited (New Government Electric Factory), Byappanahalli, Bangalore. It is claimed to be the largest export order for electric motors received by any Indian firm so far. The company has been exporting 8 to 10 per cent of its production annually during the past two to three years.

The range of products of NGEF includes transformers, motor switchgears and other electrical goods. During 1970-71 the company entered the new field of project business involving planning, supply erection and commissioning of electrical equipment on a turnkey basis for traction sub-stations, electrolysis plants, refineries, fertiliser plants and other major industries. The net sales and value of production of the company during 1970-71 doubled to Rs. 103.9 million and Rs. 117.7 million. During the same year the company crossed the break-even stage, and for the first time made a net profit of Rs. 1.56 million.

EXPORT ORDER FOR CABLES

The Consortium of Indian Power Cables has recently won a global tender for supply of power cables to Singapore. The tender was floated against a loan from the Asian Development Bank and the Consortium bagged the Rs. 12.5 million contract against stiff competition from leading cable manufacturers of the world. With the completion of this order Singapore would have bought cables worth about Rs. 32.5 million from India.

Cables and wires occupy the second position in the export of engineering products, next to automobiles and accessories. During 1970-71 exports touched a figure of Rs. 113.2 million improving upon 1969-70 exports at Rs. 111.6 million.

The share of major items in the export line in the years 1970-71 and 1969-70 was: bare aluminium conductors Rs. 30 million and Rs. 38.8 million, bare copper conductors Rs. 48.8 million and Rs. 34.5 million, insulated cables and wires Rs. 27.1 million and Rs. 37.4 million and other types Rs. 937,000 and Rs. 284,000.

The major export destinations for bare aluminium conductors were Yugoslavia (Rs. 7.2 million), U.S.S.R. (Rs. 5.0 million), Arab Republic of Egypt (Rs. 4.4 million), Sudan (Rs. 4.0 million), Iran (Rs. 2.6 million), Tanzania (Rs. 2.1 million), Kuwait (Rs. 1.3 million), and Thailand (Rs. 1.3 million). The major purchasers of bare copper conductors were Iran (Rs. 39.6 million), Kuwait (Rs. 2.3 million), Singapore (Rs. 1.9 million) and Hong Kong (Rs. 1.7 million). Major importers of insulated cables and wires in 1970-71 were : U.S.S.R. (Rs. 5.5 million), Iran (Rs. 2.6 million), Ceylon (Rs. 2.6 million), Qatar (Rs. 2.3 million), Federal Republic of Germany (Rs. 1.4 million) and Argentina (Rs. 1.0 million).

Besides the export of the product, the Indian industry is now in a position to extend technical cooperation in the establishment of units for the manufacture of cables and wires. Two joint ventures in Malaysia - one for the manufacture of AAC/ACSR and PVC insulated conductors and the other for enamelled wires and accessories - are being set up with Indian collaboration.

ANOTHER JOINT VENTURE ABROAD

An order for setting up a cast iron foundry in Kenya has been bagged by M/s. Salvi Super Structures, a small-scale unit. The project was conceived by Kenya in 1969 when it issued a global invitation to the work. The Indian firm was chosen for building the foundry by Kenyan Government representatives after their personal visit to India in September 1970.

The total project will ultimately cost Rs. 5 million. The initial investment will be about Rs. 1 million, of which the firm will be exporting about Rs. 300,000 worth of machinery from India and later another Rs. 200,000 to 300,000 worth of machinery.

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The first phase of the project will be completed within a year from the date of the commencement, which is expected to be completed sometime in August or September. The project will be a joint venture between the Indian firm and M/s. Kenya Industrial Estate Ltd., a Government of Kenya undertaking or their nominees.

CONSULTANCY SERVICES FOR EXPORT

The Government of Libya have approached India's National Development Corporation, New Delhi to set up a steel melting and billet casting plant in that country on turnkey basis. The Corporation has nearly completed the designing work and is proceeding with the setting up of the plant.

In Iran, the NDC is collaborating with the Industrial Development and Renovation Organisation of Iran to establish a consultancy organisation in that country. The Iranian consultancy organisation - Technolog Inc - has now developed into a full-fledged organisation capable of undertaking consultancy work in that country. It also has been appointed for carrying out a survey of a capital goods project in Iran.

The corporation has also been appointed consultant by several parties in Kenya and even in advanced countries like U.K.

The United Nations Industrial Development Organisation, Vienna has placed the specimen of NDC's technical work in its library.

During 1970-71, the NDC earned Rs. 7.4 million as service charges for consultancy work in India and abroad.

SANITARYWARE AND EXPORT EFFORT

Export trade in sanitary, pluming, heating and lighting fixtures and fittings amounted to Rs. 3.73 million during 1970-71. But even in the first three quarters of the following year, namely April-December 1971 the export value rose to Rs. 4 million. The major products that were exported in this area are sink wash basin, of ceramic material/iron or steel, lighting fixtures and parts thereof etc.

The installed capacity for sanitaryware during 1971 was 17080 tonnes. The estimated production during the year was 14,361 tonnes as against 12,762 tonnes in 1970.

M/s. Hindustan Sanitaryware and Industries Limited who are the leading manufacturer/exporter in the line claim 83 per cent of the total exports of sanitaryware from India. Their production during 1971-72 increased to 5002 tonnes to 3540 tonnes in the preceding year.

EXPORT PERFORMANCE, IN CHEMICALS

India today is in a position not only to meet her domestic requirements of pharmaceuticals, chemicals, rubber and pesticides but also is to export these items to overseas countries. During 1970-71, India exported pharmaceuticals to the tune of Rs. 84.65 million, chemical elements and compounds worth Rs. 78.39 million, and rubber manufactures Rs. 68.57 million.

M/s. Bayer (India) one of the firms engaged in production, of these items have exported pharmaceuticals, chemicals, rubber and pesticides worth Rs. 7.00 million during 1970-71 as against their export performance of Rs. 4.3 million during the preceding year.

EXPORT PERFORMANCE AND POTENTIAL

ELECTRIC MACHINERY EARNS MORE FOREIGN EXCHANGE

India-made electrical machinery, apparatus and appliances are more active in world markets than last year. In the first three quarters of 1971-72 (April-December 1971) the machinery earned Rs. 151.68

million worth of foreign exchange, as against Rs. 119.85 million in the same period of 1970-71. In fact, in the entire year of 1970-71 the export value of this group was Rs. 160.80 million. Obviously the full year of 1971-72 will witness a higher growth in export earnings from this machinery.

Equipment for distributing electricity was the major item that has contributed to the export uptrend. During April-December 1971 the equipment was exported to the tune of Rs. 44.94 million as against Rs. 28.90 million in the corresponding period of 1970. In this category of exports, insulated wire earned Rs. 43.13 million and electrical insulating equipment Rs. 1.81 million. In the first three quarters of 1971-72 among the insulating wire cables supplied overseas, were the apparatus of enamelled copper winding wire, plastic insulated wire, paper insulated cables, plastic insulated cables and rubber insulated cables etc. The range of electrical insulating equipment exported including porcelain discs and strings below 6 PF 6 KV and up to 66 KV, electric conduit tubing etc.

The next item of importance among electrical machinery that is active in the export market is electrical power machinery and switchgear group which earned Rs. 38.17 as against Rs. 31.58 million. Electric power machinery exports included AC generators, complete generating sets with diesel engines, complete sets with steam engines; AC squirrel cage induction motors, AC, Slipper motors, and other electrical motors and accessories. Transformers up to 37 PT 5 KV, rating from 3000 KVA to 10,000 KVA, transformers above 66 to 132 KV rating even above 10,000 KVA and transformer accessories were particularly buoyant in the export market.

Telecommunication apparatus is another line of electrical machinery export with rising demand from overseas markets. Having fetched Rs. 23.49 million in the first three quarters of 1971-72 as against Rs. 19.47 million in the same period of the previous year, the apparatus was supplied to several markets far and near including Australia, France, German Federal Republic, Greece, New Zealand, U.K. and U.S.S.R. Telephone and telegraph equipment, microphone, loudspeakers, radios, amplifiers, wireless reception and other transmission equipment constitute major categories of export in this line.

In the domestic electrical equipment group which netted Rs. 14.16 million as against Rs. 12 million complete domestic refrigerators and parts, air circulators, portable blowers, ceiling fans, pedestal fans, table fans, railway carriage fans, domestic water heaters, electrical smoother and hair dressing appliances are among the products supplied overseas. The Indian industry is also epuipped well to supply abroad electro-medical apparatus, x-ray and other apparatus as also flash light batteries, other dry cell primary batteries, lead acid type accumulators, electric lamps, including infra-red electric apparatus; thermionic valves and tubes, electrical measuring and controlling instruments etc.

CHEMICALS AND ALLIED PRODUCTS EXPORTS UP

The export value of chemicals and allied products, under the purview of the Chemicals and Allied Products Export Promotion Council, Calcutta, reached a level of Rs. 404.50 million during 1970-71. This represents a rise of about 78 per cent since 1967-68 when the export earnings for these items amounted to Rs. 228 million. During 1968-69 and 1969-70 the export value for these items stood at Rs. 290.8 million and Rs. 337.9 million.

Regionwise, the intake of Asia shot up to Rs. 153.46 million during 1971-72, as against Rs. 69.48 million in 1967-68, Rs. 118 million in 1968-69 and Rs. 131.27 million during 1969-70. With 1967-68 as the base year, the rise is particularly noticeable in case of Burma, Ceylon, Japan, Iran and Iraq. The exports to these countries during 1970-71 as against 1967-68 were as follows :

Burma Rs. 12.8 million against Rs. 8.1 million; Ceylon Rs. 13.9 million against Rs. 6.2 million; Japan Rs. 13 million against Rs. 7 million; Iran Rs. 17.4 million against Rs. 2.3 million; Iraq Rs. 10.7 million against Rs. 1.2 million. However, 1970-71 witnessed a slight decline in export of these items to Cambodia, Formosa, Fiji and Lebanon as against the 1967-68 exports. During the two comparative years exports to East Asia as a whole valued at Rs. 91.97 million and Rs. 56 million. West Asia as a whole accounted for imports from India amounted to Rs. 61.49 million and Rs. 13.43 million. During the two comparative years (1970-71 and 1967-68) the imports of the African continent stood at Rs. 65.19 million and Rs. 25.70

million. The improvement was more noticeable in case of North Africa with an intake of Rs. 44.93 million in 1970-71 as against Rs. 15.32 million in 1967-68.

In regards to Europe, exports of the items under review improved to Rs. 159.5 million in 1970.71 as against Rs. 113 million in 1967-68. The exports to East European region during the two years stood at Rs. 81.41 million and Rs. 51.33 million. There was appreciable increase in exports to Yugoslavia, U.S.S.R., Rumania, Poland and Hungary. However, exports to Bulgaria registered sharp decline at Rs. 0.21 million in 1970-71 as against Rs. 1.72 million in 1967-68. Exports to Czechoslovakia and East Germany also witnessed a slight decline.

The purchases by West Europe including EEC countries during the two years amounted to Rs. 79.17 million and Rs. 61.71 million. The intake of West Germany improved to Rs. 11.4 million in 1970-71 as against Rs. 5.34 million in 1967-68. Exports to Switzerland at Rs. 1.94 million also registered a sharp rise as against Rs. 0.016 million in 1967-68. This uptrend in the export value was also noticeable in case of Italy, Netherlands, Denmark, Greece and Norway. However, there was slight decline in intake of countries like Belgium and Sweden.

As regards the American continent, exports during 1970-71 were at a level of Rs. 22.56 million against Rs. 17.94 million during 1967-68. The increase was more noticeable in case of North America with an intake of Rs. 20 million in 1970-71 as against Rs. 15.82 million in 1967-68. The intake of other American countries also improved from Rs. 2.1 million in 1967 to Rs. 2.4 million in 1970-71.

In respect of Australia, there was doubling of Indian exports during the two comparative years at Rs. 3.6 million from Rs. 1.8 million. Exports to Australia improved to Rs. 3.33 million as against Rs. 1.4 million. However, in case of New Zealand there was a decline to Rs. 0.35 million as against Rs. 1.42 million.

The items covered by the Chemicals and Allied Products Export Promotion Council include rubber beltings, rubber hoses, automobile tyres and tubes; inks, paints and varnishes, resins, glass bottles, glass ware of all type, manufactures of asbestos, sanitaryware, ceramic products, refractory products, paper of all type, typewriter ribbon and pads, papar products, books and publications, dyeing and tanning extracts, lacquers, vaccum flasks, asbestos cement sheets, roofing tiles, sterilized animal meal, plywood and plywood, products, hardboard, detonators and explosives, hair beltings, ores, cork products, synthetic enamels, pigments, colouring materials, barytes, calcined magnesite, kyanite, kaolin, sillimanite etc.

LEATHER MANUFACTURE IMPROVE IN EXPORT TRADE

While the export trade of leather and leather manufactures during the entire year of 1970-71 amounted to Rs. 721.82 million, the first three quarters of 1971-72 registered an export turnover of Rs. 642.59 million. The export performance in the first three quarters of the previous year was only at Rs. 527.89 million.

Nearly 15 per cent of the leather production in India is in the large scale sector. The industry has been recently included in the 'priority industry's list'. The industrial policy for this industry is guided by the rising demand for various items in the overseas markets. In view of the ever improving keenness of the world markets for the leather products made in India, Government is assisting in a large way the export oriented units both in the private and public sectors to improve production efficiency, reduce cost and adopt latest methods of production, to suit the specific tastes of overseas buyers.

The organized leather sector is mainly concerned with the production of chrome tanning of hides, vegetable tanning hides, western type of leather footwear, Indian type of leather footwear, picking bands, leather belting, glue, vegetable tanning materials, synthetic tanning materials and hair and cotton beltings.

The leather footwear industry particularly is receiving encouragement from Governement for setting up large scale units for manufacture for export purposes. In fact, this is one line where the international demand for Indian products has gone up considerably in recent years.

In order to help the tanning industry in India, raw hides and skins, wattle extract, quebracho extract etc. are placed under Open General Licence. The exporters of leather and leather products are also being allowed to import essential raw materials. In order to encourage export of processed goat skins in place of raw goat skins, the export quota for goat skins was reduced from 15 to 10 per cent during 1971 and to 5 per cent during 1972.

DEHYDRATED MUSHROOM EXPORTS UP

Among the exports of vegetable roots, tubers (preserved or prepared), exports of edible dehydrated mushrooms occupy an important place. During the period of 9 months from April to December 1971, exports of dehydrated mushrooms amounted to Rs. 1.9 million (1901 kg.). Bulgaria was the main importing country whose intake was worth Rs. 0.3 million, followed by Switzerland, France, U.K., U.S.A. and German Democratic Republic.

The exports of edible dehydrated mushrooms during 1970-71 were of the order of Rs. 3.3 million (18911 kg.). The main importing countries were Switzerland, Federal Republic of Germany, United Kingdom and U.S.A.

Various schemes for bringing this item under the compulsory quality control and preshipment inspection are now being administered by the Agricultural Marketing Department of the Government of India.

METERS ON THE EXPORT FRONT

The production of a variety of measuring struments in the country has gone up considerably during 1971.

The production of electrical measuring instruments in terms of value in 1971 rose to Rs. 23.6 million as against Rs. 13.6 million in 1970 registering an increase of more than 73 per cent. The number of units in the line also increased from 8 in 1970 to 9 in 1971. Along with the rise in production, the import content for these instruments, on an average, has also been reduced to less than 10 per cent of the C.I.F. value.

During the same period, big increase in the output of water meters and house service meters was also recorded. The production of six units engaged in the production of water meters went up from 160,000 numbecs in 1970 to 165,000 in 1971. These 6 units engaged in the line produced water meters varying from 1/2" to 24" capacity. The production of house services meters increased by over 0.39 million meters to 2.8 million in 1971.

Increase of more than Rs. 10 million was also recorded in the production value of industrial process and control instruments. The production during 1971 was valued at Rs. 67.68 as against Rs. 57.2 during 1970.

The output of medical and surgical instruments which was valued at Rs. 11.37 million in 1970 increased to about Rs. 16.23 million in 1971, marking an increase of nearly 46 per cent.

The production value of x-ray and electro-medical equipment also went up by nearly Rs. 10.4 million to Rs. 25.46 million in 1971.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

INDUSTRIAL PROGRESS

A REVIEW

The year 1971-72 has witnessed notable progress in Indian Industry. Notwithstanding raw material shortages and resultant idle capacity, burden on the economy thrown by refiugee influx and the conflict with Pakistan, there were major production gains in several fields as also an improvement in export performance and decisive achievements in the context of import substitution.

Production increases were recorded in respect of several industries including machine tools, instruments, sewing machines, electric fans, a number of electronic goods, scooters, mopeds, three-wheelers, automobile tyres and tubes, aluminum, polyester staple fibre, plasticisers, dyestuffs and a variety of drugs and chemicals. Raw material shortage particularly of iron and steel, however, affected the growth of industries especially in the engineering sector. Government have decided to import steel and other essential raw materials to tide over the shortage. Import of steel alone is expected to be of the order of Rs. 2000 million.

Several new items were manufactured for the first time in the country during the year and new ranges of production were established with the index of industrial production for such industries having gone up to 256 and odd in the first nine months of 1971 compared to an index of 246 in 1970.

Manufacture of new items such as oxygen, nitrogen and acetylene plants; blood transfusion equipment; photo-copying machine; notching machine; internal grinder; cardiograph recording paper, magnetic tapes, timer and stop clock, hydraulic pumps and valves, ultrasonic flow detectors, sterio equipment, electronic desk calculators etc., in the engineering group and items such as sulfamic acid, nylon tyre cord, nylon staple fibre, dense magnesite, zircon nozzle, and a number of miscellaneous fluorides in the chemical group have considerably reduced the import bill and strengthened the self-reliance endeavour in the industrial sector.

Export of engineering goods recorded remarkable increase during the year. It was of the order of Rs. 812.9 million during April-November, 1971, compared to Rs. 663.9 million during the same period in 1970 and is expected to be of the order of Rs. 1250 million for the whole year of 1971-72. The export of chemicals and allied products which was around Rs. 805.2 million during 1970-71, is however expected to be only of the order of Rs. 604 million during 1971-72. This is mainly due to diversion of most of the essential chemical items required for Defence purposes during the year.

Some of the important individual items looking up in exports included engineering items such as railway coaches, wagons and parts, transmission line towers and poles, radio and components, sugar, paper, cement and chemical machinery; builders hardwere, scientific and surgical instruments and chemical and allied products such as automobile tyres and tubes, processed minerals and refractories, drugs and pharmaceuticals, dyes, soaps, detergents and cosmetics, cement, plastic raw materials and products, essential oils etc.

Besides, turnkey export contracts in respect of number of items have been executed during the year.

As many as 21 joint ventures were approved during 1971, thus bringing the total number of approved joint ventures abroad by the Indian industry to 126. Of these, 29 have already gone into production and 59 are in various stages of implementation.

Joint ventures established during the year included the setting up of a joint venture in Nova Scotia (Canada) for the manufacture of super enamelled magnet wires, technical collaboration and consultancy for building and equipping a factory for the manufacture of ceiling fans in Iraq.

A large number of Indian enterprises are now equipped to render consultancy services in many engineering and chemical fields demanding complicated know-how, sophisticated plant and equipment, indigenous design and engineering. In fact, Indian consultancy services have been aiding the industry to attain self-sufficiency not only in designing the projects, but also in indigenous manufacture of various auxiliary equipment which were imported. Indian industry has already won substantial industrial contracts in which the countrys' consultancy talent utilised so far, has been much appreciated. Some examples are (i) setting up of three cement plants in Syria, (ii) one newsprint mill in the same country and (iii) general industrial development work in Iran by India's National Industrial Development Corporation.

Some of the turnkey projects entrusted to Indian firms, which invariably include consultancy services, are (i) construction of power transmission lines in Kuwait, Nigeria and Sudan, (ii) complete sugar mill in Uganda, and (iii) textile mills in UAR. Indian consultancy services have now been recognised in overseas markets for their competence to offer services in several specialised fields.

The need for directing the future economic development of the country on the basis of maximum self-reliance was unequivocally stressed for the first time during the year under review. The constitution of a National Committee on Science and Technology has come as a boon to the Indian industry and its efforts towards achieving self-reliance.

It was realised that the country's economy was not taking full advantage of the productive assets, which have already been created, in a major drive to maximise production, Government have decided to permit 54 key industries to produce more than their licensed capacities. The existing units in these industries can now increase their production to double their licensed capacities without a fresh licence. So far, the industries had been permitted to exceed their licenced capacity by 25 per cent only.

Another significant development during the year was that more licences and letters of intent were issued by the Government than in any of the previous seven years. Of the 2,932 applications received during 1971, 625 entrepreneurs were given licences while 1015 were issued letters of intent.

As a result of the bold and decisive steps taken in the field of import substitution, it is estimated that a sum of Rs. 1537 million worth of foreign exchange was saved during 1971 compared to Rs. 1410 million during 1970.

SPECIAL MEASURES FOR INDUSTRIAL DEVELOPMENT

While keeping under constant review the growth of production capacity and actual production in various industries, the Ministry of Industrial Development under Government of India have initiated special steps for further development of vaious industries. In the mechanical engineering industries group, the industrial machinery sector attracted close attention of Government for devising special measures. A group of selected industries manufacturing paper and pulp machinery, chemical machinery, rubber machinery and printing machinery has been included in the 'core sector' for further development in the coming decade. Items such as pharmaceutical machinery, ash handling equipment, oxygen and acetylene plant, ceramic machinery, food processing machinery, mineral beneficiation plant etc. come under the priority group for special development. During 1970-71 steps were taken by Government to instal additional capacity to meet the growing demand in respect of boilers, chloride containers, pulp and paper making machinery, mining and coal washery, chemical and pharmaceutical machinery, leather and footwear machinery etc.

Major machine tools units in the country have been examined for exploring possible indigenous sources of supply. With self-reliance as the main note of machine tools sector, certain issues pertaining to import of machine tools were attended to and technological gaps indentified. As for the instrument sector additional capacities were licensed in respect of X-ray and electro-medical equipment, medical and surgical instruments and electrical measuring instruments. The prospect of creating additional capacity of industrial process and control instruments is also under close consideration. It was resolved that foreign collaboration should be allowed in electro-medical equipment which are essentially life saving equipment.

Substantial rise in production capacity is envisaged in heavy mechanical engineering industries such as for the manufacture of steel pipes and tubes, bright bars, welding electrodes, wagon components, fabricated pipe work etc. Likewise additional production capacities are being created for items such as safety razor blades, high tensile bolts and screws, pipe fittings, industrial chains, typewriters of all kinds. Applications for expanding capacity for the manufacture of tin containers, collapsible tubes, watches, industrial fasteners etc. are also receiving Government's consideration.

In the heavy electricals sector, individual manufacturers received heavy orders for power transformers. To enable the indigenous manufacturers to quote and adhere to their delivery schedules, necessary assistance has been rendered by Government. Licensed capacity for the manufacture of electric motors by 1971 end increased to 4586300 HP from 4185000 HP at the beginning of that year. Capacity for the manufacture of switchboard cables for telephones was augmented in the year under review. The existing manufacturers of PVC and VIR cables were permitted to import balancing machinery for switchboard cables and this has avoided a large inflow of imports.

There are plans to considerably imporve production capacity of enamelled winding wires. The supply of E.C. grade aluminium which is one of the major raw materials required by cables and wires industry has been guaranteed. Applications for setting up new factories for the manufacture of items such as lamps, fans, heating elements, and electrical stamping are being actively processed by Government. During 1970-71 licensed capacity was expanded for items like dry battery cells industrial and domestic refrigerators and storage batteries. In the field of electronic components a large number of letters of intent have been issued as it is a 'core sector' industry. Production is also being increased in the equipment field or electronic instruments, T.V. receivers, electronic desk calculators, tape recorders and other professional electronic equipment.

In view of the shortage of raw materials such as graphite electrodes, ferro silicon, refractories and refactory materials, heavy melting scrap, etc., measures are taken to meet the shortage of castings industry. The shortage of graphite electrodes was met through imports through State Trading Corporation of India. Likewise decisions were taken to meet the requirements of ferro-silicon by main steel plants so that the indigenous production for the item can be fully released to other actual users. The shortage of refractories and refractory materials is to be met by canalising the imports through the Minerals and Metals Trading Corporation. In the refractory sector, the new items produced for the first time in 1970-71 were zircon nozzles and dense magnesite bricks. To meet its shortage, heavy melting scrap is also canalised for import.

Coming to the chemical and allied industries group, the production of nitrogen and complex fertilizers in 1971-72 was expected to have reached 840,000 tonnes of nitrogen and 150,000 tonnes of P_2O_5 as compared to 816,245 tonnes of nitrogen and 95,972 tonnes of P_2O_5 in 1970-71. The additional saving in terms of reduced imports of fertilizers to the extent of Rs. 50 million was also achieved during 1971.

Among basic and alkali chemicals, soda ash became acutely short for indigenous use in 1971. All soda ash manufacturers were therefore advised to maintain their rate of supplies to their normal customers at the old rates and imports were made open for all actual users to the extent of 10 per cent of their past consumption in the case of existing users and 100 per cent of their requirements in the case of new users. The canalisation of soda ash imports has had a salutary effect on the price machanism of the chemical in the market.

In view of the acute shortage of caustic soda the item's import was canalised through the State Trading Corporation during April 1971. A number of caustic soda manufacturing units took steps to gradually get some of the spare parts like bus-bars, flexible copper and aluminium connections, rubber lining, short circuit switches, mercury pumps, special valves for standing moist chlorine, pipe lines for handling hydrochloric acid and gas chlorine, etc. indigenouly developed.

In the manufacture of sodium hydrosulphate, zinc dust of a rigid specification would become necessary and as such one indigenous manufacturer in the line was afforded all possible assistance in obtaining an accepted specification from all the three indigenous manufacturers of this item. This firm can now manufacture more quantity of zinc dust for sodium hydrosulphite industry.

As there was likely to be some difficulty in the procurement of clacium borate (coleminite) from Turkey, M/s. Borax Morarji, Bombay were persuaded to take up the manufacture of boric acid from crude sodium borate.

In view of the rising demand of miscellaneous fluorides from electricity boards and flux industry, M/s. Navin Fluoride Industries were persuaded to take up the manufacture of miscellaneous inorganic fluorides as a measure of diversification. They are presently producing about 16 miscellaneous fluorides, fluoroborates etc.

Keeping in view the vast possiblity of export of leather and leather goods including footwear from India several measures have been taken to insure the growth of the leather industry and its export potential. Exports of raw hides which are in short supply are not generally allowed. Export of tanning materials except myrobalan is not encouraged. Export of raw goat skins has been restricted to encourage the production and exports of processed and finished skins from India. Export of raw sheep skins is also not generally allowed. On the other hand, import of raw hides and skins, wattle bark/extract, quebracho extract and chestnut extract is kept on Open General Licence. To augument the supply of tanning materials, large plantation of wattle trees has been undertaken in the country. Production of wattle extract from indigenously available wattle bark was also started.

FOURTH ATOMIC POWER STATION

Atomic Energy Commission in India has decided to set up fourth atomic power station at Narora in Western Uttar Pradesh. For the present, the station will consist of two 200/235 m.w. reactors and will feed power to Northern India.

The reactors to be put up at Narora would incorporate new design representing an improvement in technology over Rajasthan and Madras power stations. The proposal is based on minimum imports. The entire design and engineering efforts for the new station will be undertaken by Indian engineers and scientists.

The existing Tarapore Atomic Power Station in the country generated over 2400 million units during 1970-71 and in the seventeen months of its operation by then generated over 3750 units. The other two nuclear power stations-the Rajasthan Atomic power Station at Rana Pratap Sagar, near Kota (Rajasthan) and the Madras Atomic Power Station–are in the construction stage.

NEW TELEPHONE SYSTEM

A new transistorised telephone system to provide an instant communication link between the rural areas and townships in the country has been developed by the Telecommunications Research Centre of the Posts and Telegraphs Department.

Field trials of this new rural telephone system-called VHF system, have already been carried out in a hilly tract between Chandigarh and Morni hills in Haryana during the past seven months. A public call office trunk line has been in continuous commercial operation since November.

The new facility will help farmers to get in constant touch with the tractor training centres, irrigation and flood authorities, seed and fertilizer supply centres and other Governmental agencies at the tehsil or district town from their villages. It will enable the farmer not only to avoid wasteful journeys to town but also to contact technical experts and technologists on telephone.

The new system employs an electronic tube in the output stage, the rest of the equipment being transistorised. It is designed to work on 24 watts car type battery. It can deliver up to 40 watts of power.

Full ringing and signalling arrangements have been provided in the equipment to enable facilities for trunk call. It can work on the radio link to an automotic or manual telephone exchange. With suitable antennae and masts, the system can operate over ranges up to 50 km. in normal terrain. It is estimated to cost about Rs. 9,003 per terminal.

Another new version of the transistorised telephone system designed by the Telecommunication Research Centre will go on field trials shortly. Capable of working on 12 watt car battery, this compact equipment has all facilities available in the earlier system. The cost of such is estimated between Rs. 5000 and Rs. 6000.

Both the systems have full duplex operation, that is, it can provide simultaneous speak and hear facilities. They can provide satisfactory transmission performance consistent with the needs of telecommunication network.

The new telephone link is expected to result in greater reliability, easier operation, maintenance and expeditious installation. The cost of installation and dismantlement, when necessary, will be considerably lower in hilly and wooded terrain and areas generally prone to floods.

MINERAL DEPOSITS FOUND

Rich deposits of copper, magnetite, lime-stone, bauxite, diaspore and pyrophyllit have been discovered in Uttar Pradesh recently. The State Geological Department's investigations have revealed that rich and substantial deposits of bauxite (aluminium ore) had been found in Baunda district. Diaspore and pyrophyllit, the minerals which are mostly utilised in refractory industry, had been found in Jhansi District. The other significant minerals like Magnetite and Silica have been found in Pithoragarh and Almora and in Allahabad Districts respectively.

Mirzapur District has been found very rich in lime-stone deposits. These huge reserves of lime-stone will now enable the State to establish big cement factories. The surveys and investigations carried out so far have indicated that there are deposits of iron ore in Jhansi District, baryte (Barium sulphate) in the Bundelkhand region, lead and dolamite ores in Dehra Dun and graphite in Hamirpur District.

PASSENGER-CUM-CARGO SHIP LAUNCHED

The first Indian designed passenger-cum-cargo ship M. V. "Harsha Vardhan", built by the State-owned Mazagon Dock Limited was launched at Bombay lately.

The 9,183 dwt ship, built for the Shipping Corporation of India, will carry 600 bunker and 153 cabin passengers. The ship, which will ply on international routes, will have a cruising range of 7,500 nautical miles and has been built at a total cost of Rs. 64.1 million.

It will compare favourably with any luxury liner built abroad and will be provided with facilities like a swimming pool, a lounge where films could be screened, dining saloons, game decks. It will be fully air-conditioned.

As stated by Mr. Raj Bahadur, Union Minister for Transport and Shipping, the building of the ship was "venture that reprsented a big stride forward in the history of ship building in the post-independence period of the country."

IMPORT SUBSTITUTION BY ALL INDIA RADIO

A net saving of Rs. 1.2 million in foreign exchange has been achieved by All India Radio during 1970-71 by way of import substitution and indigenous electronic fabrication.

Keeping in view, India's march towards import substitution and self-reliance, the Research Department of the A.I.R. during 1971-72, has intensified indigenous fabrication. The Bharat Electronics Limited, on the suggestions of the Research Department of AIR, is engaged in production of many sophisticated items exclusively for broadcasting such as medium wave transistors, tape recording and playback equipment and different kinds of radio amplifiers and valves. Production of indigenous spare parts has resulted in saving of Rs. 0.23 million in foreign exchange.

Besides this, the prototype unit of AIR has produced and perfected equipment such as the first solid state TV receiver. It has further improved the output of the TV transistor from 0.5 to 2 watts. The unit is currently engaged in fabrication of transistorised medium wave receiver and digital slave clocks. Other equipment under development process are a 250 watt VHF power amplifier and peak cliper modulating units.

HANDMADE PAPER PRODUCTION UP

India's handmade paper production during 1970-71 has reached 3071 tonnes valued at Rs. 7.12 million as against 2963 tonnes valued at Rs. 6.8 million during the corresponding period of 1969-70. There was an increase of 17 per cent over the production of 1969-70.

The production of high grade handmade paper too increased during 1970-71. As against production of 541 tonnes valued at Rs. 30.4 million during 1969-70, production during 1970-71 reached at 703 tonnes valued at Rs. 4.2 million.

Among the leading handmade paper producing states, Maharashtra topped the list recording production of Rs. 2.22 million (31 per cent of India's total production). Uttar Pradesh produced worth Rs. 0.95 million, followed by Rajasthan and Tamil Nadu worth Rs. 0.8 million each, while Gujarat and Pondicherry produced worth Rs. 0.5 million each.

TUNING VARACTORS DEVELOPED

The Solidstate Physics Laboratory (SPL), Delhi has developed axial lead tuning varactors diodes of various types in order to provide a substitute for imported diodes.

The work has been carried out on laboratory scale and several silicon slices of 1″ diameter (each slice capable of giving 300 to 400 diodes) have been processed in the laboratory with good reproducibility of capacitance and capacitance ratio. The processed diffused diodes have been encapsulated at BEL. Encapsulated diodes have been tested at the Chief Inspectorate of Electronics, Ministry of Defence, Government of India, Bangalore and found to be satisfactory.

The epitaxial slice of the desired resistivity is cleaned and then a layer of Sio_2 is grown over it by oxidising under dry-wet-dry conditions. The oxidised slice is subjected to a photolithography step using a mask suitable for the desired capacitance at a specified voltage. The slice is exposed, developed, baked and etched till the desired areas on silicon are opened out. The slice is cleaned with deionised water and then subjected to a diffusion cycle where the diffusion time, temperature and flow rate of gases are chosen to obtain the desired value of junction depth and sheet resistance. The slices are nickel plated on both sides after a photolithography step, scribed, diced and separated out into individual chips. Only tested diodes are then taken and encapsulated. After encapsulation the diodes are visually inspected with the help of a magnifying lens. Good diodes are tested for V-1 characteristics using a curve tracer. Capacitance and Q measurements of the diodes are carried out on Boonton Capacitance bridge and admittance bridge respectively.

A normal semi-conductor device manufacturer would have almost all the facilities required for the manufacture of these diodes. Apart from facilities for photolithography the equipment like glass to metal sealing unit, bridges and test facilities may have to be procured through import. Other items of equipment like oxidation/diffusion furnaces, soldering furnace, ultra sonic cleaners, KPR spinner and wafer prober are indigenously available.

Capacity of a commercial plant as recommended by SPL is 2000 to 4500 diodes per month, depending upon the type of diodes. For such a plant the outlay is estimated to be about Rs. 500,000 (excluding land and buildings). Covered area required for storage and manufacture is one thousand sq. ft. approximately.

Tuning varactors are used in HF and VHF communication equipment being manufactured in the country by agencies like BEL, Bangalore, Philips India Ltd., Calcutta etc. They are also envisaged for use in communication equipment being produced at ITI Bangalore, TV receivers being developed at HAL, Hyderabad etc. Tuning varactors are also required by development agencies like Telecommunication Research Centre, Post & Telegraph Department, Overseas Communication Service and technical research organisations. Tuning varactors find application in voltage controlled tuning of oscillators, automatics frequency control, frequency multiplication etc. At present all the requirements are being met by imports.

SOFTWARE FOR COMPUTERS DEVELOPED

An indigenous software device by which a computer can simulate another of a different type of computer, has been designed by the Indian Institute of Management, Ahmedabad, Gujarat.

Expertise for projecting charts and illustrations on an electric screen, attached to the computer etc. have been developed indigenously. This would be of great help to research work because conventional computers as such would not give two dimentional output to represent their calculations. It would enable the computers to talk with the user through a tele-typewriter. This was achieved by giving the computer a series of grand lessons based on the fortran system until its memoray cells could easily assimilate the language. The know-how was developed on the time share basic system (TSB) which is more versatile and responsive than the conventional computer.

The use of conventional computer is more cumbersome because the user has to send a deck of cards to the computer centre and await the results. The TSB on the other hand, enables the user to directly talk to the computer through tele-typewriter terminal with the programme in hand. The user is never required to see the computer. Any errors marked, are instantly pointed out and corrected immediately. Trial runs and changes in programme logic or output formast can follow each other rapidly. Sometimes it is easy to share problem solving between user and machines.

NEW RICE STRAIN

A gall-fly resistant variety of rice culture 13801, has been evolved by the Andhra Pradesh Agricultural University Research Station.

Eminently suitable for the Eastern Telengana region and Guntur and Godavari Districts in coastal Andhra Pradesh, the new rice culture is to be named as 'Kakatiya'. The Research Station worked on the evaluation of Gall midge resistant varieties by adopting 'hybridisation' techniques and isolating donors for gall midge.

'Eswarakara', a tall indice with coarse grain was found showing resistance to the gall midge in field tests. From these hybrids and cultures W. 1251, W. 1257 and W. 1263 were developed and isolated which are also gall midge resistant.

FIRST SATELLITE VEHICLE DESIGN COMPLETED

The design aspects of India's first satellite launch vehicle for placing a scientific satellite of about 30 kg. in space have been completed denoting a major advance in the project. Developmental work on scale models is now being undertaken.

The satellite is to be placed in a near circular orbit at an altitude of 400 kms. The system at present under consideration is a solid propellant, a four stage one, using rockets of diameter 1000 mm, 800 mm, and 650 mm. It will use inertial guidance and control system.

The space Science and Technology Centre at Thumba which has been entrusted with the responsibility for the satellite project, has made good headway in rocketry development, which is the core of the satellite programme. Recently, a two-stage rocket project, Rohini-125, aimed at perfecting the multi-stage rocket system with different separation methods, has been successfully flight tested.

A two stage rocket project, Rohini-560, with a booster of 560 mm. diameter and 300 mm diameter sustainer is now underway - Experiments have been conducted for the casing material of the booster for which fibreglass and metal stripwinding techniques are proposed to be used.

Expansion of the rocket fabrication facility, where the rocket systems for placing the first satellite in space are to be fabricated is underway to fabricate rockets upto 1000 mm diameter, needed for the satellite launching vehicle project.

The rocket propellant plant where the solid propellants for rocket systems are produced is also being expanded for the satellite. The plant was originally planned for an annual production of 30 tons of propellant. The expansion of the existing plant, which has been approved and is in progress will ensure that propellant for all stages of the first Indian launch vehicle is made in the plant.

An important project under development trials is a "Thrustvector Control System" for controlling the rockets in flight. Precision components like gyroscope, accelerometer and guidance computer are under development.

The figure *'Rs. 17 million'* in the first sentence of the lead story of the previous issue of this weekly may please be read as *'Rs. 71 million.'*

COMPOSITION OF INDIA'S EXPORTS

(In million rupees)

Export Product	1970 - 71	April to December 1970 - 71	April to December 1971 - 72
Fish and Fish Preparations	305.37	233.09	285.20
Meat and Meat Preparations	30.52	26.36	10.50
Cereal and Cereal Preparations	109.72	82.05	49.74
Fruits and Vegetables	**650.17**	**518.70**	**583.59**
a) Fresh Fruits and Nuts	544.07	436.01	528.67
b) Fruits Preserved and Fruit Preparations	17.26	12.70	18.34
c) Vegetables	70.36	56.58	22.16
Sugar and Preparations and Honey	294.47	191.93	278.63
Coffee	251.05	216.28	190.11
Tea and Mate	1482.47	1201.51	1224.97
Spices	388.05	245.63	234.55
Feeding Stuff for Animals	589.65	432.66	319.63
Unmanufactured Tobacco	313.98	261.38	349.69
Manufactured Tobacco	11.64	7.49	27.98
Textile Fibres and Waste	273.42	201.59	205.14
Metalliferrous Ores and Metal Scraps	1421.08	1065.51	845.88
Crude, Animal and Vegetable Materials	431.50	314.19	360.33
Petroleum and Petroleum Products	85.61	73.88	53.24
Fixed Vegetables, Oils and fats	70.32	43.50	39.79
Chemical Elements and Compounds	**78.39**	**54.55**	**55.12**
a) Organic Chemicals	33.11	21.75	25.00
b) Inorganic Chemicals	45.29	32.79	30.12
Dyeing, Tanning and Colouring Materials	72.60	50.35	40.48
Essential Oils and Perfumes Materials	71.27	55.12	66.26
Leather and Leather Manufactures	721.82	527.89	842.59
Rubber Manufactures	68.57	52.58	59.85
Paper and Manufactures	54.08	48.52	25.22
Textile Yarn, Fabrics and Related Products	**3504.09**	**2557.91**	**3319.00**
a) Jute Manufactures (excluding twist and yarn)	1891.73	1351.90	2143.75
b) Cotton Manufactures (excluding yarn and thread)	974.66	702.31	711.41
c) Textile Yarn and Thread	344.79	282.33	200.14
d) Floor Covering and Tapestries	157.50	123.83	146.81
e) Woven Texitle Fabrics	121.29	86.68	106.83
Pearls, Precious and Semi-precious Stones	418.79	313.37	372.26
Glass and Glassware	17.49	11.13	10.71
Iron and Steel	906.48	707.57	341.95
Non-ferrous Metals	120.93	86.17	59.89
Metal Manufactures	278.44	184.95	206.38
Machinery other than Electric	280.78	205.12	199.09
Electrical Machinery Apparatus and Appliances	160.81	119.85	151.68
Transport Equipment	**309.51**	**217.26**	**203.64**
a) Railway Vehicles	28.17	18.37	57.20
b) Road Motor Vehicles	209.03	144.72	85.75
c) Road Vehicles other than Motor Vehicles	70.98	53.09	59.85
Clothing	301.98	221.80	247.14
Footwear	114.40	76.54	90.38
Scientific, Medical, Optical, Measuring and Controlling Instruments and Apparatus	14.22	9.50	12.36
Developed Cinematographic Films	58.58	45.79	40.66
Total including other items	**15243.88**	**11397.39**	**11900.02**

Source : Department of Commercial Intelligence and Statistics, Calcutta.

CHEMICAL INDUSTRIES
A REVIEW

With 1960 as the base year, the production of chemical industries coming under the purview of Director General of Technical Development of Ministry of Industrial Development registered a continuous growth—118.8 in 1961, 116.0 in 1965, 246.53 in 1969, 261.43 in 1970 and 270.25 in the first nine months of 1971.

Production of nitrogenous fertilizers improved from 101,000 tonnes in 1960-61 to 816,245 tonnes in 1970; phosphatic fertilizers from 53,000 tonnes to 155,482 tonnes; sulphuric acid from 368,000 tonnes to 1206,131 tonnes; soda ash from 152,000 tonnes to 446,443 tonnes and caustic soda from 101,000 tonnes to 367,398 tonnes. Along with increase in the production of various items of chemicals, there has been considerable decrease in their import during the last decade and the establisment of chemical complexes have not only provided a sound base but have led the way for improving the technological standards.

New units are being set up every year in the chemical and allied industries to undertake manufacture of sophisticated items and existing units are expanding to maximise production. During 1972 the new items in the chemical and allied industries group manufactured for the first time in the country included miscellaneous fluorides such as sodium silico fluoride, chromium fluoride, potassium fluoride, lead fluoride, lithium fluoride, sodium fluoride, aluminium fluoride etc. vinyl asbestos flooring material, electrolytic staple fibre, nylon manganese di-oxide, sulfamic acid, pillow pack, nylon tyre cord, zircon nozzle, dense magnesite, protein biscuits etc.

In the acids and fertilizers group, as many as 67 units are engaged in the manufacture of sulphuric acid with a total installed capacity of 1.96 million tonnes as against a total licensed capacity of nearly 3.3 million tonnes per annum. Production during 1971 was of the order of 1.28 million tonnes representing 65.5 per cent utilisation of the installed capacity as against a production of 1.19 million tonnes in 1970.

M/s. Hindustan Organic Chemicals, Bombay with a licensed capacity of 33,000 tonnes per annum, have gone into production during 1971.

The production of sulphuric acid by the Hindustan Zinc Ltd., Udaipur which is based on indigenous zinc pyrites was 23,288 tonnes in 1971 resulting in an import saving of 8,150 tonnes of sulphur valued at about Rs. 2.5 million.

Twentyeight units of single superphosphate are engaged in the manufacture of single superphosphate with a total installed capacity of 208,000 tonnes per annum in terms of P_2O_5. Production during 1971 was of the order of 123,000 tonnes or, in other words, 59.3 per cent of the installed capacity, as against 103,000 tonnes during 1970. The unutilised capacity in the single superphosphate industry is due to the lower P_2O_5 content in superphosphate fertilizer as compared to higher analysis fertilizers like ammonium phosphate.

To rehabilitate the superphosphate industry the units are encouraged to set up facilities to produce NPK mix granulated fertilizer using the superphosphate as a base material and utilising more concentrated fertilizers like urea, ammonium nitrate, mono-ammonium phosphate, di-ammonium phosphate etc.

The total installed capacity of white phosphorous by M/s. Excel Industries Ltd. Bhavnagar, has been increased to 5000 tonnes per annum. The output of the items during 1971 was 604 tonnes as against 184 tonnes in 1970. One unit in Bombay who has been licensed to manufacture 15,000 tonnes of sulphuric acid, started production recently. A private Bombay unit as well as the Fertilizer Corporation of India who have been licensed for the manufacture of sodium nitrate and nitrate are likely to go into production by the end of 1972.

The production of nitric acid (industrial use), hydrochloric acid, phosphoric acid (industrial use), chlorosulphonic acid, aluminium sulphate (iron free), alumina ferric, sodium sulphate, copper sulphate etc. during 1971 was around the level of their production during 1970.

The production of nitrogen and P_2O_5 increased from 816,245 tonnes and 95,972 tonnes in 1970 to 825,873 tonnes and 141,034 tonnes respectively in 1971. M/s. Madras Fertilizer Ltd., came into production during the year with an annual capacity of 190,000 tonnes nitrogen and 85,000 tonnes P_2O_5.

Projects of Fertilizer Corporation of India (Durgapur) and FACT (Cochin) are expected to have calcium carbide has reached the saturation point in respect of its installed capacity, the Government inivited applications from entrepreneurs for new and substantial expansion capacity in this field. About 35 applications were received and during the years 22 letters of intent were issued for substantial expansion and new installation for an aggregate capacity of approximately 260,000 tonnes of calcium carbide per year.

During the year some of the organic chemicals based on indigenous ethyl alcohol registered increase in production. They are acetic anhydride, ethyl acetate, butyl alcohol, butyl acetate. The production of acetic acid was maintained almost at the same level of 1970. A larger production of synthetic rubber based alcohol compared with previous year has however, been reported.

The position of availability of ethyl alcohol was rather easy during the half of 1971. Due to drought, floods etc. the position worsened during the latter part of the year and it is feared that in 1972 there might be shortage of alcohol.

The petro-chemical complex set up at Bombay consisting of two crackers had been running throughout the year. Some of the items from this petro-chemical complex have registered rise in production. They are : H.D. and L.D. polyethelene, 2-ethyl hexanol, and P.V.C. Production of other chemicals had remained at the same level as in the last year. This is due to lack of growth in demand for these chemicals.

Production of methanol from the fertilizer plant had been higher during 1971 compared with the previous year and this plant has run uninterruptedly over the year and has been able to cater to the needs of formaldehyde plant satisfactorily. Three new plants of formaldehyde have also come into operation during the year in different parts of the country.

On account of disturbed conditions in the State of West Bengal, the coal based complex at Durgapur registered a steep short fall in production during the first 9 months of the year. With improvements in the situation, it is hoped that in 1972 they will be able to produce substantially higher quantity of phenol, phthalic anhydride etc.

One plant of pentaerythritol has also gone into regular production during the year and another unit is on the verge of commercial production. It is expected that in 1972 production from these two units will effect considerable saving in foreign exchange by restricting import of this chemical.

The production of chloro-ethylene and other miscellaneous chemicals like oxalic acid, benzyl chloride etc. had remained steady. Increase in production of acetanilide M.A.P., acetylene black has been reported during the year. Sharp fall in production of chlorinated paraffin was due to non-availability of paraffin wax.

The aromatic project of the Indian Petr o-Chemical Corporation at Koyali, Gujarat, is making steady progress and the unit is likely to go into production by end of 1971-72. Progress has been made in the setting up of olefin cracker and other down-stream units in this area. Production is likely to be commenced from these units in 1974.

Import substitution by production of chemicals in large quantity as well as new items continued to make progress throughout 1971. The larger units in the production of organic chemicals have also set up new facilities in their units, in order to obtain indigenous substitutes for their spares which were being imported. ☐

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AWARDS FOR OUTSTANDING EXPORT PERFORMANCE

Nine awards and twentyeight certificates of merit for outstanding export performance during 1968-69 were recently presented by the Deputy Minister of Foreign Trade, Mr. A.C. George, to leading exporting firms and institutions. While congratulating the award winners, the Deputy Minister emphasised that the Indian exporters should keep abreast of modern developments in a rapidly moving age. "We must concentrate on increasing supply to overseas markets of the types of commodities in which world trade is expanding".

Among the award winners, M/s. Bombay Dyeing and Manufacturing Co. Ltd., Neville House, Graham Road, Ballard Estate, Bombay exported 10 per cent (Rs. 80 million) of the total exports of cotton textiles from India in 1968-69. The firm introduced several innovations such as compressing shrinkage of cloth materials, crease resisting and minimum ironing processes. Another award winner, The All India Handloom Fabrics Marketing Cooperative Society Ltd., 10, Sunkurana Chetty Road, Madras who were adjudged as one of the outstanding exporters of Indian handloom fabrics, have improved their export trade from Rs. 3.4 million in 1966-67 to nearly Rs. 7.5 million in the following year. M/s. Hindustan Steel Limited, P.O. Hinoo, Ranchi contributed about 60 per cent of the national exports of iron and steel in the year for which the award was provided. Their exports were marked by sophistication in the range of products supplied abroad, broadening of existing markets and entry into new markets.

Another award winner, M/s. T.I. Cycles of India, Ambattur, Madras were responsible for developing a new model lightweight bicycle popularly known as SLR (Sports Light Roadster) and a 2-speed lightweight model. The firm has also evolved special carton packing to hold a bicycle in completely assembled condition and to stand transportation of 10,000 to 12,000 miles across the sea. Exports of this firm amounted to over Rs. 9.5 million in the year.

M/s. Hindustan Aluminium Corporation Ltd., 10, Camac Street, Calcutta-17 who for the first time exported Rs. 2.6 million worth of aluminium in 1967-68 increased their overseas supply by nearly 23 times in value, being 27 per cent of their total contribution.

A leading manufacturer of PVC leather cloth, sheeting and allied products, M/s. Bhor Industries Private Ltd., 392, Veer Savarkar Marg, Bombay are one of the pioneers in the development of flannelbacked table cloth. Their exports amounted to Rs. 4.5 million during 1968-69. This firm has set up a Leather Cloth Manufacturing Factory in Ceylon and another in Uganda. The leading exporter of cut and polished diamonds, M/s. Mahendra Brothers, 7, Dhanji Street, Naranidhan Bhavan, Bombay-3 also received an award for having doubled their exports year after year since 1965-66 till they reached a level of Rs. 20.5 million in 1968-69. A highlight of their export performance is that they have commenced exporting cut and polished diamonds to some of the well known diamond cutting and polishing countries such as Belgium and Israel. The Engineering Export Promotion Council, Calcutta which had been the leader and pace-setter of export promotion organisations was also provided an award for outstanding export performance. The Council forged several techniques such as formation of consortium of exporters, fixation of floor prices to maximise export earnings, establishment of a development cell to identify new products for export, operation of an Indo-German Export Promotion Project and servicing exporters with commercial information and generally catalysing them into greater efforts.

M/s. Tata Exports Ltd., Block A, Shivsagar Estate, Dr. Annie Besant Road, Worli, Bombay, a merchandising export house, handled a wide range of Indian engineering, taxtile, chemical and other products. Their exports during 1968-69 amounted to Rs. 113.36 million which is more than double their exports in the previous year. This firm too was provided with an award for outstanding export performance.

Among the 28 recepients of certificates of merit for noted export performance were the exporters of a broad range of products like curry powder, cashew kernel and cashew shell liquid; shellac; frozen shrimps, lobster tails and froglegs; mica in fabricated processed forms; cotton fabrics and cotton yarn products; handloom fabrics and ready-made-garments of terene polyester blends and embroidered polyester cotton fabrics; woollen hosiery, iron and steel material; cast iron pipes and cast iron strainer; M.S. pipes and tubes; hand tools; hydrochloric acid and liquid chlorine; automobile tyres and tubes; ball point and fountain pens; spectacle frames; linoleum, cement, precious and semi-precious stones; hand-knitting machines, telecommunication equipment; chocolate confectionery, bournvita, drinking chocolate, cocoa powder, cocoa shell etc., plastic and linoleum products; bicycles and bicycle components and other engineering products; surgical and household gloves, leather and rubber foot-wear; automobile and cycle tyres and tubes, cycle rims and other rubber products.

CONDUCTORS TO U.S.A.

The manufacturer of a wide range of semi-conductor devices such as transistors, diodes and integrated circuits as well as polished wafers, epitaxial wafers and diffused wafers, M/s. Hindustan Conductors Pvt. Ltd., Post Box No. 60, Nadiad (Gujarat) have recently undertaken to export of one million Integrated Circuits per month to the United States of America. The firm has also received a large number of enquiries from advanced countries including U.S.A. and Europe for supply of semi-conductor devices. They have also bagged an order for supply of 10 million epoxy transistors to the highly competitive Hong Kong market and is busy in executing the same.

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Equipped with modern machinery and laboratory facilities, the company's plant is engaged in ever improving production of Epi wafers, Diffused Wafers, Assembly in Metal can and epoxy transistors. They will also undertake the manufacture of sophisticated devices in the country.

An Institute of Solid State Technology is attached, to the plant to impart courses in Wafer Preparation, Measurements on semiconductor materials, Oxide formation, Diffusion, Banar technology, etc. Interest has been expressed by even Western countries to learn wafer fabrication technology from this Institute.

EXPORT OF PYRIDINE AND PICOLINE

Supplies of Alpha picoline and pyridine are being made presently by a Bombay firm to the U.K. market against current orders for a value of Rs. 0.5 million. Two orders for further supply of approximately Rs. 0.1 million are in the pipeline, from another advanced country in the West.

Requiring sophisticated technology, the two chemicals namely, Pyridine and picoline are processed from synthetic chemicals like Acetaldehyde, Amonia and Formalin, by M/s. Warner-Hindustan Limited, 254-B, Dr. A.B. Road, Worli, Bombay-25 DD. Indigenous production of these chemicals by the firm has also helped to conserve substantial foreign exchange by avoiding imports.

Both these chemicals are used in the pharmaceutical and dyestuff industries. Beta Picoline is the basic material in the manufacture of a Vitamin-Niacinamide; Gamma Picoline is the basic material for the manufacture of Iso-nicotinic Hydrazide, the widely used anti-T.B. drug. Alpha Picoline and Pyridine are used for a variety of purposes in both the pharmaceutical and dyestuff industries.

There are several other end products for which Pyridines and Picolines are the basic raw materials. These uses briefly are : Alpha Picoline-(a) 2-Vinylpyridine, used for binding tyre cord, (b) 2-Cyanopyridine, (c) Herbicides e.g. Tarden; (d) fertilizer additive i.e. "N-Serve" for regulated release of nitrogen, (e) Anthelmintics-e.g. Methyridine, (f) In manufacture of bug and moth killer for fabrics; Beta Picoline (a) for manufacture of 3 Cyanopyridine and niacin and niacinamide, (b) Uspamin-antispasmodic, (c) Bilamid and (d) camphotamide, a respiratory stimulant; Gamma Picoline (a) for manufacture of 4-Cyanopyridine and INH, (b) In the manufacture of Polynethylene di-iodides of pyridine-4-aldoxime used as antidote for organophosphorous insecticide poisoning; Pyridine (a) manufacture of 2-Aminopyridine, (b) sulpha pyridine and sulpha drugs, (c) Sulphanating "Aduct" in dye stuff, capital brightners, synthetic detergents and Lab reactions (d) manufacture of steroids and antiseptics and disinfectants such as etyl pyridine chloride, (e) General solvent, (f) Textile Water-repellent "Zelan", (g) Rubber Chemica, piperidine and dithiocarbamate, (h) Bactericides such as 1-Hydroxy-pyridine-2 thioxy and cetylpyridium chloride, (i) Herbicides and weedicides, (j) Pyridium and (k) Antihistamine such as phenaramine melleate and drug such as Meretran and azacyclonol.

CABLES AND CONDUCTORS IN EXPORT TRADE

Cables and conductors occupy an important position among the exports of engineering products, next to automobiles and accessories. As against Rs. 111.2 million worth exported during 1969-70, the exports during 1970-71 fetched Rs. 113.2 million.

During the years 1969-70 and 1970-71 the major items of export in the line, constituted insulated cables and wires, bare aluminium conductors, bare copper conductors and other types.

During these years, the major importing countries of insulated cables and wire were: USSR, Iran, Ceylon, Qatar, Federal Republic of Germany, Argentina etc. For bare aluminium conductors, U.S.S.R., A.R.E., Sudan, Iran, Tanzania, Kuwait, Thailand were the major destinations. For bare copper conductors, Iran, Kuwait, Singapore and Hong Kong were the main markets.

The Industrial Cables (India) Limited, Jeevan Tara Building, Parliament Street, New Delhi has exported

P.I.L. power cables and A.C.S.R. conductors valued at Rs. 13.83 million during the firm's financial year, ending October 1971 against stiff competition in the international markets. During the comparable period of 1970, the firm had exported these items worth Rs. 9.21 million. The firm has thus registered an increase of Rs. 4.62 million during their 1971's exports over its export performance during 1970.

In its efforts towards product diversification and expansion, the firm has plans to set up a steel wire manufacturing unit in Haryana. The firm has received a letter of intent for the manufacture of grooved contact wires (trolley wire) and has further secured a license for the manufacture of X.L.P. cables. It also plans to instal an aluminium rolling mill for aluminium rods.

EXPORT PERFORMANCE AND POTENTIAL

TARIFF ARRANGEMENTS WITH SPAIN AND TURKEY

Pursuant to the Negotiations at the Trade Negotiations Committee of developing countries under the auspices of the General Agreement on Tariffs and Trade (GATT) in Geneva, request lists were exchanged among the participating countries. India has signed agreements with eight developing countries for exchange of tariff concessions of specified products.

Under the Agreement with Spain several concessions were offered by India to that country by which products of importance for industrialisation in India would be imported. Simultaneously the Spanish Government too agreed to offer concessions on certain items of export interest from India particularly in the non-traditional sector. The products on which the Indian Government granted concessions to Spain include polymerisation and copoly-merisations products like polyvinyl chloride in liquid, powder, grains and other form; polyvinyl acetate and polyestyrene in liquid, powder and grains and other forms. On these items, the Indian Government granted special tariff concession equivalent to 50 per cent of the effective Most Favoured Nation (MFN) rate of customs duty. Similar special tariff concessions were also offered on certain other products including rubber tyres, tyre cases, interchargeable threads, inner tubes and tyre flaps for tractors; tubes and pipes of iron or steel excluding high pressure hydroelectric conduits; interchargeable tools for handtools, machine tools or for power-operated hond tools etc.

The concessions granted by Spain to India under this Trade Negotiation related to articles of a kind commonly used for domestic purposes, builder, sanitaryware for indoor use, and parts of such articles and ware of iron or steel, fluid control valves, including pressure reducing valves, thermostatically controlled valves, primary cells and primary batteries, worked out ivory in the form of finished articles and finished horn articles. Exchange of above items would be qualified by certain rules of origin of Spain.

Likewise with Turkey, all concessions would be exchanged. Among the concessions granted by India to Turkey include steam and other vapour gederating boilers of specified varieties, primary cells and batteries, electrical accumulators, lead acid accumulators, spot welding machines with transformers, portable type and so on. The concessions granted by Turkey to India are products such as rubber tyres, tyre cases, inner tubes, tyre flaps for wheels of all kinds; standard wire, cables, cordage, ropes, etc. of iron or steel; hand tools such as pliers,pincers, tweezers, bolt croppers, perforating punches, pipe cutters, spanners and wrenches, files and rasps etc; electrical line telephonic and telegraphic apparatus and cinematographic cameras, projectors, sound recorders, etc. Here again the concessions to be exchanged between India and Turkey would be governed by the rules of origin of Turkey.

EXPORT PERFORMANCE OF PLASTIC PRODUCTS

In the first eleven months of 1971-72 (April 71-February 72) India's exports of plastic products amounted to 44.41 million, showing improvement over the export value at Rs. 37.16 milion during the same period of 1970-71. In the entire year of 1970-71 these exports were only Rs. 41.42 million.

The major contribution for the export rise in the line was by PVC leather cloth whose exports for the period reviewed by 1971-72 stood at 10.82 million as against Rs. 6.6 million in the first eleven months of 1970-71. In the corresponding periods the export of spectacle frames were Rs. 3.9 million and Rs. 3.19 million, that of bangles Rs. 4.2 million and Rs. 1.70 million; PVC fabrics Rs. 1.53 million and Rs. 1.22 million, plastic imitation jewellery Rs. 3.55 million and Rs. 3.31 million, extruded goods Rs. 1.19 million and Rs. 1.08 million, pipes and specials Rs. 0.38 million against Rs. 0.11 million respectively. Marginal decreases were registered in respect of PVC sheeting, plastic electric accessories, fountain pens, and PVC fabricated goods. The export of HDPE sacks/fabrics amounted to nearly Rs. one million as against Rs. nil in the corresponding period of the preceding year.

TRADING IN WOOD AND LUMBER

Export trade of wood and lumber and cork amounted to Rs. 55.94 million in the first three quarters of 1971. This was a definite improvement over the export earnings of Rs. 46.98 million in the corresponding period of the previous year.

The major improvement in the export earnings of this group was due to the increased trade in a specific category of wood, namely, wood in the rough or roughly squared form. This category fetched Rs. 55.55 million as against Rs. 46.18 million.

Other export categories are fuel wood and charcol shaped or simply worked wood and raw cork waste.

In the rough and roughly squared wood category, the varieties on export front are rose wood, sandalwood, teak wood, walnut wood, deodar, benteak, paliwood, red sandal, sal, etc. The export earnings of rose wood are the highest. They were Rs. 46.70 million in the first three quarters of 1971-72. Japan, Italy, and Federal Republic of Germany are the important markets. Sudan, Hongkong, Japan were the principal importers of India's sandalwood, while Iraq and Japan were the major markets for teak wood.

FRUITS AND VEGETABLES EARN MORE FOREIGN EXCHANGE

As compared to export value of Rs. 518.7 million during the first three quarters of 1970-71, the corresponding period of the following year witnessed a sizeable upsurge in export earnings at Rs. 583 6 million. Fresh fruits and nuts contributed the best in this line in export. Their export rose from Rs. 436 million to Rs. 528.7 million. In this category, edible nuts alone earned Rs. 523 million in the period April-December 1971. Of this, broken cashew kernels fetched Rs. 96.67 million while whole cashew kernels fetched Rs. 416.57 million. The major markets for cashew kernels (whole) were U.S A. (Rs. 233 million), U.S.S.R. (Rs. 87.8 million), Netherlands (Rs. 6.4 million), U.K. (Rs. 7.3 million), Japan (Rs. 9.8 million), Hongkong (Rs. 7 million), Czechoslovakia (Rs. 4.5 million), Canada (Rs. 34.8 million), Australia (Rs. 10.6 million).

Dry fruit exports improved from Rs. 1.57 million to Rs. 1.98 million in the comparable periods. Preserved fruits, fruit preparations also rose from Rs. 12.70 million to Rs. 18.34 million. Exports of vegetable, roots and tubers (preserved or prepared) also fetched more at Rs. 12.4 million as against Rs. 11.84 million. The only area where there was decline in the export trade was, fresh, frozen and simply preserved vegetables.

PIG IRON IN EXPORT TRADE

India's exports of pig iron (including cast iron) to the overseas countries during 1970-71 amounted to Rs. 227.73 million (5,02,033 tonnes).

Exports of pig iron (including cast iron) during three quarters of 1971-72 (April-December) fetched Rs. 71.95 million. Japan was the major importing country accounting for 172,327 tonnes valued at Rs. 56.81 million. The other important destinations were Singapore, Yugoslavia, Korea Republic, Hong Kong and Kuwait.

Recently, a trade agreement was signed between India and USSR. Accordingly, India has to export

50,000 tonnes of pig iron to USSR valued at Rs. 180 million. Hindustan Steel Limited, P.O. Hinoo, Ranchi, a public sector undertaking has signed the agreement for supply of pig iron within a period of 12 months.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

TOWARDS IMPORT SUBSTITUTION

The term import substitution broadly means the development by a country of domestic production of industrial goods including capital goods, raw materials, components and spare parts; industrial and technological skills, know-how etc. which were either formerly being imported by it or which are otherwise bound to be imported by it in the near future or for which there is a large domestic demand. Thus the assessment of achievements on the import substitution front would have to cover the entire field of industrialisation of a country compared to its former state and not merely the amount of foreign exchange saved. Viewed in this context the progress of import substitution in India during 1971 is outlined here below in selected sectors of industrial activity.

Among the engineering industries, a stage of self-sufficiency has already been reached in respect of a variety of industrial machinery such as sugar machinery, cement machinery, industrial and power boilers, material handling equipment like coveyors, construction equipment, tea processing equipment, weighing machinery, certain types of chemical equipment, asbestos cement production plant, dairy equipment and so on. With a few exceptions, industrial machinery sector has reached a high percentage of indigenous content; the import content mainly comprises raw materials like boiler plates and mild steel plates, deep drawing sheets, stainless steel sections, seamless tubes of certain sections/materials and specialised components mostly of bought-out nature. Even among these categories, some of the raw materials are being already produced in India although in short supply and steps are being taken to boost indigenous production in selected fields.

In the machine tool sector import substitution is a continuing process. A strict control is exercised over the phased manufacturing programmes. Some of the highly sophisticated machine tools are now being manufactured with as low as 10 per cent import content.

As for instruments, the year 1971 witnessed the production of serographic machines by utilising the know-how developed indigenously. The substitution of finished products in the end instruments will also be carried out progressively. In the year under review substitution of finished products such as X-ray tubes, ECG papers, intensifying and fluoroscopic tubes, disc and rolled chart etc. resulted in a saving of about Rs. 4.6 million.

In the light mechanical engineering industries group, bicycles constitute one area marking significant progress in import substitution over the years. Although raw materials like mild steel and carbon steel strips repuired for the manufacture of chains, rims etc. continued to be in short supply, for other raw materials such as nickel required for plating and copper and zinc for brazing for bicycle tube valves and spoke nipples etc. the consumption has been brought to the minimum. Use of nickel for which there is no indigenous source has been replaced to the maximum possible extent by the use of zinc and bright galvanizing.

Improvement was also noticeable in the availabilty position of spring steels required for the automobile laminated leaf springs, silico manganese steel flats, which represent the bulk of the requirement with the exception of a few sizes and special tolerances were available indigenously in sufficient quantities. The approximate indigenous availability of raw material for automobile laminated springs was assessed at about 75 per cent of the total requirements. Production of high speed steel has already commenced in India and about 40 per cent of the required cutting tools industries is being met through the indigenous manufacturers. For grinding wheels industries the major requirement of raw materials is of synthetic grains (aluminium oxide and silicon carbide). Of these, the brown aluminium oxide and silicon carbide finer than 300 mesh are being made available from indigenous sources.

Imoprt of components has been progressively eliminated by substituting indigenous ones in the typewriter industry. A small scale unit has commenced production of steel types which is one of the important components of typewriters and they have already supplied a portion of requirement to some of the manufacturers. After this item has been fully developed, there would be a saving for foreign exchange to the tune of Rs. 1 to 1.10 million per annum on this account. Cent per cent indigenous production was achieved saving foreign exchange of about Rs. 0.6 million per annum for the manufacture of duplicators. The majority of components required for the manufacture of air conditioning and refrigeration equipment such as crank shafts, connecting rods, pistons etc. have been developed for many types of compressors.

In the electrical engineering industries sector, the rotors of cage induction motors up to 30 H.P. are being cast in aluminium to save copper. Complete substitution is expected possibly by April 1973 for copper winding wires with aluminium winding wires in the distribution transformers industry. In the switchgear industry indigenous capacity of some of the raw materials like automobile strips is being licensed and it is expected to reduce the dependence on imports. A large quantity of cables aad wires is already being manufactured with aluminium conductors. Import substitution has been carried out to a maximum extent in this industry. Possibilities are being examined regarding the use of copper clad aluminium in place of copper, for control cables, winding wires and in certain types of special cables. The zinc produced by M/s. Hindustan Zinc could be found suitable in the dry battery but as the production of this company is yet insufficient, the import of the item is to be continued. With the production of electrolytic manganese dioxide in the country, the import of manganese ore would not be essential in the near future. Again, the production of PVC corvic resin and glass wool mat has been commenced to suit the raw material requirement of storage batteries. Indigenous capacity is being improved for the manufacture of machinery such as banbury mixer hydraulic presses etc. for the manufacture of storage batteries. The import content in the industrial air control equipment ranges from three to five per cent. While special type of woods and driers have also been developed for the paper industry, ball bearings of special type and gears of special type are some of the items for which import will have to be allowed for some more time.

In the electronics and telecommunication industry there has been a gradual cut in foreign exchange in the import of radio receivers. Depending on the availability of electronic components and raw materials, the foreign exchange content is expected to be further reduced. In the field of TV receivers a foreign exchange of Rs. 260 was permitted in the past which has now been reduced to Rs. 90 per set due to the domestic availability of picture tubes and some of the electronic valves. Steps are also being taken to manufacture components like deflection coils EHT transformers, tuners etc. which consume a major portion of foreign exchange in TV receiver. Steps are also under way to reduce import content in the tape recorders and record player industry. In the case of tape recorders, this will be possible by way of manufacture of micro-motors, tape decks and magnetic heads in the country. In record players this will be possible when the manufacture of micro-motors, cartridges, stylus etc. start in the country.

Some of the new items added to the raw materials and components for the manufacture of electronic instruments are single channel analyser, RF, watt metre, utra sonic flaw detector, frequency counter, pulse height discriminators, geigor counters etc. In some of the electronic instruments new ranges have also been added like multi – channel analyser against single channel, oscilloscopes from 20 to 50 MCS, AM & FM signal generators etc. With M/s. Bharat Electronics Limited, Jalahalli P.O., Bangalore, having taken up the manufacture of TV transmitters/studio equipments required for setting up the various TV stations in the country, a good amount of foreign exchange will be saved soon. The same firm have also taken up the manufacture of professional tape recorders required by All India Radio that would also save substantial amount of foreign exchange.

In the chemical and allied industries, some of the spare parts so far imported for the manufacture chemicals are likely to be produced indigenously. Whenever possible, indigenous substitutes for material of construction like mild steel lined with special composition rubber, ceramic material have been tried. The amount of foreign exchange needed for production of one tonne of soda ash during 1969-70 was of the order of Rs. 7.80 but it has gone down to Rs. 5.20 by end of 1971-72; in case of caustic soda the amount has gone down to Rs. 94.60 from Rs. 166.90 during the same period. Among the allied chemicals the major areas in which the import substitution angle is important concern the substitution of acid grade fluorospar with indigenous fluorospar and the substitution of imported borate minerals with indigenous minerals. It would perhaps not be necessary to import acid grade fluorospar while full requirements of the industry (about 20,000 tonnes per annum) would be available from M/s. Gujarat Mineral Development Corporation in 1972-73, or early 1974, thereby leading to a saving in foreign exchange of about Rs. 20 million per annum.

Continuous efforts are being made to replace the imported intermediates and basic chemicals by indigenous ones to reduce the import bill for drugs and pharmaceuticals sector. The drug intermediates so far imported are now being manufactured by M/s. Indian Drugs and Pharmaceuticals Ltd., Hyderabad, and a private firm in Bombay. There is a proposal for manufacture of zinc oxide indigenously in the State of Maharashtra by utilizing zinc hydro oxide a by-product of the sodium hydro-sulphite industry in the country. This proposal when implemented in the country will not only lead to the utilisation of the by-product but also save foreign exchange of about Rs. 4 million per year. The import content of paints. enamels and varnishes manufactured indigenously is around 10 per cent. Presently the major portion of foreign exchange spent in this industry is for the import of four raw materials, namely, titanium dioxide (rutile), phthalic anhydride; pentaerythritol and nitro-cellulose. The first raw material was imported to the tune of 6400 tonnes during 1970-71. M/s. Travancore Titanium Products Limited, Trivandrum have been licensed to expand their capacity for the manufacture of 6500 tonnes to 24,500 tonnes. Once the expansion project is operative, the import of this pigment will go down. In fact, the expanded capacity will not only be adequate to meet the full requirements of consuming industries in the country but also leave surplus for export purposes. The second and third raw materials mentioned above are partly indigenous. Low viscosity nitro-cellulose used for lacquer manufacture is being produced at Cordita Factory, Aruvankadu. M/s. C.I.C. Chemicals, Calcutta and M/s. India Explosives Ltd., Gomia (Bihar) have been issued letters of intent for the manufacture of 1,000 tonnes per annum of nitro-cellulose each. These firms are likely to go into production by 1973. In view of this, the dependence of the paint industry on imports of raw materials is likely to come down substantially during the next one or two years. Most of the grinding and mixing equipments required for paint manufacture is also indigenous.

Among other industries where import substitution has made progress, cement industry is based on 100 per cent indigenous raw materials. The only foreign exchange expenditure is for meeting the demand of maintenance spares, particularly for plants of imported origin. The quantum of such requirements is gradually being diminished with the growth of indigenous machinery industry which can now make complete plants on turnkey basis.

The chief raw materials required by the rubber goods manufacturing industry are natural rubber, synthertic rubber, reclaim rubber, carbon black, sulphur, rayon and nylon tyre cord, rubber chemicals, bead wire and tube valves. In order to put the industry on sound footing, steps were taken to establish capacity for these chief raw materials during the Second Plan period and the production of these raw materials commenced one after the other since the beginning of Third Plan period resulting in substantial saving in foreign exchange. At present entire requirement of natural rubber, SBR synthetic rubber, reclaim rubber, rayon tyre cord, tube valves and bead wire are being met from indigenous production. Requirement of carbon black and rubber chemicals are being met to the extent of 90 per cent of the requirement from indigenous production. Till the middle of this year, there was no production for nylon tyre cord. One of the units viz. M/s. Nirlons Fibres, Bombay have commenced the production of nylon tyre cord in the country. With the commercial production by this firm of the acceptable grade of nylon tyre cord, import of nylon tyre cord will be reduced to a considerable extent. This would lead to further saving in foreign exchange.

The country is more than self-sufficient in tanning and leather footwear industries. After meeting the domestic demand of these commodities, a substantial quantity is being exported. Import requirements for the production of leather apart from raw hides and wattle extract is very small and as such there does not appear to be much scope for further import substitution.

Three units licensed for the manufacture of synthetic tanning agents are now in production. During 1971, under report, these units have produced about 1217 tonnes of synthetic tanning agents valued at Rs. 6.8 million. Some of the synthetic tanning agents produced by these units could be used for the manufacture of modified/blended myrobalan extract which would be able to substitute imported wattle extract to some extent.

FERTILIZER CAPACITY INCREASES

With two new fertilizer units—Madras and FACT (M/s. Fertilizers and Chemicals Travancore Ltd.) IV stage Expansion – going into production during 1971-72, nitrogenous fertilizer capacity in the country has increased to 1.53 million tonnes from 1.34 million tonnes in 1970-71.

A number of projects are at present under implementation. Cochin and Durgapur fertiliser projects are under trial runs and will go into commercial production during this year. Goa fertiliser project also is nearing completion and is scheduled to go into production in 1972-73. Barauni, Namrup Expansion, and Kota Expansion projects, now under construction, are expected to commence production in 1973-74. After all these new units have come up, the total capacity by the end of 1973-74 is expected to be around 2.34 million tonnes.

During 1971-72, production of nitrogenous fertilisers also improved to 0.95 million tonnes as against 0.83 million tonnes in 1970-71. It is expected to further increase to 1.39 million tonnes in 1972-73 and 1.78 million tonnes in 1973-74.

The P_2O_5 (Phosphorous Pentoxide) capacity in the country has also increased to 0.50 million tonnes in 1971-72 from 0.42 million tonnes at the end of 1970-71 after production started in the Madras Unit. The phosphatic part of the FACT IVth stage Expansion and Goa Unit will be going into production in 1972-73 raising the total capacity to 0.57 million tonnes at the end of 1973-74.

The production of P_2O_5 was 0.29 million tonnes in 1971-72, marking an increase of 28 per cent over the 1970-71 production. This is expected to further improve to about 0.40 million tonnes in 1972-73 and about 0.46 million tonnes by the end of the Fourth Five Year Plan (1973-74).

Besides improvement in capacity and production, there are two other areas in which appreciable progress has been made by the fertilizer industry in the country. This relates to design and engineering of fertilizer plants within the country and also steps taken to fabricate and manufacture equipment required for the fertilizer industry. A number of engineering organisations in the country, today, can undertake design and engineering for fertilizer plants. In particular the Fertilizer Corporation of India (FCI) and the FACT Engineering and Design Organization, (FEDO) have been engaged in the planning, designing, engineering and construction of fertilizer plants on the basis of limited acquisition of foreign process know-how. In addition, Engineers India Limited have also recently entered the field and have undertaken engineering work for fertilizer plants.

While about 7 or 8 years ago, the foreign exchange component for a fertilizer plant amounted to nearly 60 or 70 per cent of the cost of a plant, today the country fabricates and produces a variety of equipment such as centrifugal compressors, pressure vessels, almost all electrical equipment, many kinds of instruments, material handling equipment etc. Consequently, it is now possible to limit the foreign exchange component to about 30 to 35 per cent. When some of the collaboration agreements now under consideration are finalised, it will be possible to further reduce the foreign exchange composition to less than 15 per cent.

MACHINE TOOLS AND SMALL TOOLS

Next to Industrial Machinery, the machine tool sector provides an important stimulous for the rapid development of the engineering and machine building industries. From a production worth less than Rs. 10 million in 1955, the machine tools output in India increased to Rs. 373 million during 1970. There are 100 large-scale units both in the private and public sectors manufacturing the tools. Presently almost all types of general purpose machine tools and quite a few of the more sophisticated machines are being manuactured in the country and imports are, by and large, confined to some very sophisticated and special purpose machine tools only.

Machine tools presently manufactured include: centre lathes, capstan and turret lathes, drilling machines including radial and multi-spindle types, milling machines (horizontal, vertical and universal knee types), cylinderical grinders, tool and cutter grinders, horizontal and vertical spindle surface grinders, crank shaft grinders, gear hobbers and gear shappers, fine boring machines, vertical and horizontal boring machines, shaping machines, slotting machines, planning machines, plate edge planners, metal sawing machines, unit heads, power hammers, mechanical and hydraulic presses, guillotine shearing machines, seaming machines, nibbling machines, electric and gas welding machines including spot welders, submerged arc welders, seam welders, argon arc welders, furnaces of various types, pneumatic tools, portable electric tools, wood working machines, wire drawing machines, plastic processing machines, shot blasting machines, die casting machines, rolling mills, metal testing machines, cable making machines, sand moulding machines, indication heating equipment, various types of machine tool accessories, hydraulic equipment like pumps, valves etc.

For manufacture of sophisticated machine tools, the units have entered into a number of collaboration agreements with world renowned manufacturers of specialised machine tools. Some of the new items of machine tools whose production has already been established or is going to be established in the near future are: Drum type turrets, single spindle and multi-spindle automatics, high precision multi-tool lathes, coping lathes, broaching machines, chucking automatics, drilling machines with quick setting arrangements, cridan threading machines, special purpose machines, presses and press brakes of higher capacities, higher capacity plastic working machines, bigger and diversified type of heat treatment and melting furnaces, glass working machines etc.

M/s. Hindustan Machine Tools Ltd., a public sector project with plants at Bangalore, Pinjore, Kalamassery and Hyderabad, have played a major role in the development of the machine tool industry in the country. They have contributed more than 50 per cent of the total indigenous production of machine tools. They have also set up design facilities in their works. Apart from turret lathes, hand operated cylinderical grinders, carbide tipped tool grinding and lapping machine and 450 mm height of centre lathes, they have developed a small chucking automat which was exhibited by them at the Hanover Fair held in September 1970. This machine has proved to be a very popular one and the firm have received large export orders for this machine.

The other major public sector i.e. M/s. Heavy Machine Tools Plant at Ranchi have also diversified their production range. They have recently concluded an arrangement with a West German firm for the manufacture of special machine tools required by the Indian Railways.

On the export front also, the machine tool industry has made rapid strides. From an export worth Rs. 7.5 million in 1965-66, export earning of the industry has gone up to Rs. 27.7 million during 1969-70 and to Rs. 28.4 million in 1970-71.

The indigenous production of machine tools which suffered a serious setback due to recession in the years 1967 and 1968 continued to increase from the year 1969 onwards. During 1970, it not only fully recovered the lost ground but also exceeded the highest production level achieved in 1966. The same trend continued in 1971 also and it is estimated that the total production during the year will be of the order of Rs. 450 million which is about 15 per cent more than that of 1970.

The diversification programmes undertaken by the existing manufacturers have again paid rich dividends and a large number of highly sophisticated machine tools are now being manufactured indigenously. A significant effect of the diversification programme is that the percentage of indigenously manufactured machine tools installed vis-a-vis the total installation has gone up. The percentage which was 31.87 per cent in 1961 has gone upto 65.45 per cent in 1970 and the increasing trend continued during the year under review also.

M/s. Hindustan Machine Tools Ltd. have played a leading role in diversifying their product range. The unit have now taken up the manufacture of cold chamber die casting machine, plastic injection moulding machines and production of jig borers. By setting up the facilities for the manufacture of these machines, which are highly sophisticated, the dependence on import will be further reduced.

Due to increase in demand for heavy machine tools, the other public sector unit, namely, M/s. Heavy Machine Tools Plant, Ranchi, have also diversified their product range. They have taken up the manufacture of new range of products such as axle turning and burnishing lathes, wheel lathes and other heavy machines required for heavy engineering units both in the private and public sectors.

The progress of M/s. Machine Tool Corporation of India Ltd., Ajmer, another public sector unit, has also been satisfactory. They have installed all the major equipment and machinery. They have also taken up the production of new products such as internal grinders and centreless grinders and it is expected that they will go into full production by 1973-74.

Small tools and hand tools cover a wide range of items from machine tool accessories to shoe maker's hammers and goldsmith's pincers. In general, however, small tools refer mainly to cutting tools, the tools of hard metal. The modern small tools are the twist drills, reamers, milling cutters, measuring tools and accessories to machine tools. Augers, chisels, gimlets, hammers, screw drivers and the like are defined as hard tools.

Apart from cutting tools, the industry produces accessories like threading taps and dyes, lathe mandrels, drill sleeves, surface plates, sine bars, and various measuring instruments. Production of tool room accessories like grinding wheels and abrasives is also increasing gradually. The various items of cutting tools, hand tools, grinding wheels and coated abrasives are consumable tools and the consumption of these items is directly proportional to the trend in the manufacturing activities of the various engineering concerns.

There was rise in production during the year 1971 in respect of almost all items in this group except in case of coated abrasives, hacksaw blades, tungsten carbide tips/tipped tools and measuring tapes. The slight fall in the production in these items was due to less offtake.

The rise in production of the various items shows that the units are now receiving regular orders and it is expected that production will increase substantially in the years to come. A new item manufactured for the first time in the country during 1971 was ground thread tap including less than 3 mm by M/s. Karona Haycock Sanderson Ltd., Nagpur.

DEBUT IN PRODUCTION OF TRANSPOSED CONDUCTORS

For the first time in India, the manufacture of Continuously Transposed Conductors (C.T.C.) has been started, a major development in the field of high voltage power transformer winding. The C.T.C. plant that was commissioned in March 1972 is the only plant in all Asia apart from Japan.

The innovation of the C.T.C. plant goes to the credit of M/s. Indian Cable Company Ltd., Post Box 514, 9, Hare Street, Calcutta-1. The Continuously Transposed Conductors incorporate a number of individual rectangular copper conductors each covered with polyvinyl acetal based enamel having excellent and well proven resistance to transformer oils and abrasion. Arranged in two groups side by side with a paper separator in between 5 to 31 (always an odd number) such enamelled conductors are continuously transposed mechanically and paper lapped overall. As opposed to individual paper lapping of conventional conductors C.T.C. greatly improves the winding space factor, reduces stray losses and leads to better heat dessipation resulting in efficient cooling of Power Transformers.

NEW 43 HP TRACTOR PRODUCED

The International Tractor Company Limited (ITCL), Bombay has produced a new 43 HP tractor. The new tractor, called 'International 43 tractor' is in addition to the 35 HP B-275 tractor which is already being manufactured by the company.

The indigenous content of the new tractor is about 80 per cent which is expected to increase to about 90 per cent.

The new 43 HP tractor is very much suitable for heavy duty cultivation work for crops such as sugarcane and cotton and higher output farming. The tractor has an advanced design of hydraulic system with position and draft control and a specially designed four cyclinder engine. It has eight forward speeds ranging from 2 to 25 kph and two reverse from 2 to 10 kph.

The ICTL is engaged in regular production of tractors for six years and has turned out 30,000 tractors uptill now. The present production schedule of the company is 12,000 tractors per year.

THREE HEAVY WATER PLANTS TO BE COMMISSIONED

India is to become self-sufficient in production of heavy water with the commissioning of three heavy water plants at Baroda in Gujarat, Kota in Rajasthan and Tutikorin in Tamil Nadu.

These plants with an installed production capacity of 300 tonnes of heavy water are likely to be commissioned by the middle of 1974.

With increasing reliance on atomic power in India, demand for heavy water is bound to increase and unless it is produced indigenously, it will have to be imported from overseas countries, resulting in heavy loss of foreign exchange.

Heavy water is used in nuclear reactors as moderators. Like ordinary water it is also a compound of hydrogen and orygen but proportion of hydrogen isotopes of mass is more than ordinary water.

At present there is only one heavy water plant in India, situated at Nangal in Punjab. The annual capacity of the plant is about 14.5 tonnes. The Nangal plant commenced production in 1962. In fact, among the Asian countries, India is the leading country in setting up a heavy water plant.

With the commissioning of two atomic plants at Rana Pratap Sagar and Kalpakkam, now under construction, the demand for heavy water is likely to be increased up to 400 tonnes. Even after commissioning of these three heavy water plants, now under construction, India shall be facing shortage of about 100 tonnes. The plans to set up one more heavy water plant in South are under consideration to meet this shortage.

NEW SCOOTER PRODUCTION UNIT IN JOINT SECTOR

A scooter plant is to be set up in India at Lucknow jointly by the Government of India, Automobile producers of India and Innocenti—an Italian firm. The agreement between the parties envisages that the entire scooter manufacturing plant of Innocenti in 'as is where is' condition, together with the drawings, designs and technical data for manufacture of the latest model of lambretta scooters, costing about Rs. 10.5 million is to be commissioned in India.

The total installed capacity of the scooter plant is estimated at about 1,00,000 scooters per annum. The plant is expected to commence production in about two years from now. The acute shortage of scooters presently experienced in India, it is hoped, would be relieved to a great extent after scooter production reaches in full swing. With the commissioning of an another unit in India, it could be possible by then to export scooters to the other countries.

India's annual production of scooters is about 64,000 numbers per year. The demand of scooters up to 1979-80 is expected to rise up to 243,000 numbers. Even after setting up this new plant, it is feared that the complete internal demand shall not be met. The proposal for expansion of the existing plants is, therefore, under consideration.

M/s. Bajaj Auto, one of the leading existing manufacturers, has sought expansion of its Vespa scooter plant from 24000 to 48000 per annum, nearly doubling its production capacity.

M/s. Escorts, another firm engaged in scooter production, has plans to raise its present production capacity of 6000 numbers to 24,000 numbers, including 12,000 motor cycles, making about four fold increase in its production.

The Government of India, have issued letters of intent to about 23 parties for manufacture of scooters.

Of these, about 6 parties are from State Industrial Corporation of Rajasthan, Andhra Pradesh, Gujarat, Punjab, and Kerala.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

PRESSURE COOKER TECHNOLOGY

Two Indian firms that were licensed to receive technical know-how from foreign collaborators commenced manufacture of pressure cookers in 1959. One of these, namely, Pressure Cookers & Appliances Private Ltd. is today in a position to re-export the pressure cooker technology. After five years of research and development conducted independently in India, this firm has been able to effect basic improvements in design and materials. In the design supplied by the foreign collaborator, the handle bar and the handle bracket were made of carbon steel and CRCA steel, and were subject to corrosion, particularly under tropical conditions and abrasive cleaning methods. The method of closing the cooker was complex as it relied upon the element of three different sets of components. The Indian firm has redesigned this pressure cooker employing a special non-ferrous alloy which is rust-proof. The complicated method of closure is simplified by reducing the requirement of alignment to two sets which are now invariably in alignment.

The firm's research and development would help import substitution. Carbon steel which has since been replaced was an imported item. Further through a change in design two components which were made of imported stainless steel, have also been eliminated.

NEW PROCESS TO MANUFACTURE WEANING FOODS

A new process for the manufacture of weaning foods has been developed by the Central Food Technological Research Institute (CFTRI), Mysore.

The process developed at the Central Food Technological Research Institute (CFTRI), Mysore aims at manufacture of weaning foods to meet the protein needs of children in the age group of 6 months to 4 years. The weaning foods developed at the institute are high protein foods and as such could also be used as a supplement to the diets of school children and adults.

The process consists of pre-cleaning and powdering of raw materials. The flours obtained are blended with other ingredients like sugar, common salt, a promix of vitamins and minerals and amino acids if necessary. These blends are then dispersed and precooked in 4 to 5 times the quantity of hot water. The cooked mass is pumped on to a roller drier. The dried flakes are passed through a sieve and packed either in tins or in polythene bags.

At present there are only two firms manufacturing weaning foods in the country. Their annual production is quite small as compared to the total requirements.

The total capital outlay for a plant capable of producing 3 tonnes of weaning food per day is estimated at Rs. 1.25 million.

MANUFACTURE OF ELECTRIC TYPEWRITERS

The Hindustan Teleprinters Ltd., Guindy, Madras, a public sector enterprise, has been recently registered for manufacture of 500 electric typewriters annually. According to present assessment the company will be able to manufacture the first batch of electric typewriters with indigenous design by the end of this year or early next year.

The annual manufacturing capacity of 500 numbers will be increased substantially in due course to meet, along with other manufacturers, the entire demand of electric typewriters in the country.

The Hindustan Teleprinters Ltd. is at present manufacturing teleprinters and other ancillary equipment. It plans to manufacture electric typewriters, out of its own internal resources, entirely indigenously by utilising the machinery and technical skill developed for manufacture of teleprinters.

The Hindustan Teleprinters Limited took up the design and manufacture of electric typewriters in 1969-70 entirely of its own and without any foreign collaboration as a part of its development programme during the Fourth Five Year Plan period. The first prototype of electric typewriter developed by the Hindustan Teleprinters Ltd. has been successfully tried out and the factory is assembling the second prototype of this machine. The tooling for production of components has also made considerable progress.

In 1971, about 43,700 typewriters were produced in the country as against 38,525 produced in 1970, marking an increase of nearly 14 per cent.

PROCESS TO CONVERT SEA WATER INTO FRESH WATER

A "solar-still", the first of its kind to convert sea and blackish water into fresh water at a low cost has been designed at an engineering college in Madurai. The still, which can produce eight litres of fresh water per day through solary energy from one square metre evaporating area, costs only Rs. 100 and could be used for a minimum period of five years. Investment and operation cost will considerably go down when large plants are constructed, as no fuel is needed in the process.

ENGINEERING INDUSTRY

A DECADE OF PROGRESS

The growth of engineering industries stands prominent among the important developments in the Indian economy during the last decade. Today a very wide range of industrial equipment is available indigenously ranging from those required for textiles, cement and other traditional industries to those for steel and fertilizers, bulk of requirements of capital equipment for power generation, transmission and distribution, a variety of agricultural machinery and implements, transport items like locomotives, wagons, trucks, motor cars, ships and aeroplanes and communication aids such as teleprinters, television sets and other electronic instruments.

Over the years, a host of products have been added to the production stream of the economy. In 1971, the new items that have been produced for the first time in India include hydraulic pumps and valves, transformer oil handling pumps, argon gas filled bulbs for the gases mines, single channel analyser, ultrasonic flaw detector, frequency counter, pulse height discriminator timers, flashers, process control equipment, traffic control equipment, voltage dependent resisters, stereo equipment, automatic solid-state voltage regulator and stabilizer, electronic desk calculator, single phase preventer, magnetic tapes, internal grinder, notching machine, decoiling and sliting line, photocopying machine, cardiograph recording paper, oxygen, nitrozen, acetylene plants, over-head weighers and crane weighers up to 5 tonnes.

In the industrial machinery group, India has today an efficient and organised production/base for a wide spectrum of machinery like cement, sugar, tea, paper, chemical, pharmaceuticals, coal mining and coal washery, fertilisers, dairy, food processing, leather, metallurgical products and steel etc. Over the years the industrial machinery sector in the country witnessed consistent improvement in the quantum, range and competitiveness of industrial machinery manufacture. In fact, the industrial machinery section has come to contribute substantially to the country's export earnings. In 1970-71 exports of various items of industrial machinery were about Rs. 94 million. The major item of export was textile machinery having fetched Rs. 55 million. Other prominent items figuring in the export list are asbestos cement plants and mill machinery, jute mill machinery, chemical plants, cigarette and match making machinery, oil mill machinery, paper and pulp machinery, tea machinery etc. Several overseas orders have been secured by Indian parties to undertake supply of machinery and equipment on a turnkey basis. In 1971, the new articles manufactured for the first time in the country included industrial filters, feed mill plants, industrial screens, machinery for packaging, wrapping and parts thereof; oxygen, nitrogen and acetylene plants.

The sugar mill machinery industry has by now been fully established in India and its production rose from Rs. 0.9 million in 1951 to Rs. 146.3 million in 1970 and to an estimated Rs. 162 million in 1971. The industry has reached a very high indigenous content for complete sugar plant of 1250/2000 tonnes of crushing capacity per day and the present import content is only to the extent of Rs. 1 million (including components for boilers) which is only 8 per cent of the value of complete plant. The manufacturing units in the line are now gearing up to fabricate and supply sugar plant up to 3000/4000 tonnes per day crushing capacity.

The cement mill machinery industry turns out complete cement plants both wet and dry process, having a capacity ranging between 300 tonnes to 1000 tonnes per day. Some of the cement mill machinery manufacturers have exported complete cement plants. The import content for a complete plant of 600 tonnes per day capacity is of the order of Rs. 1.2 million for wet process and Rs. 1.9 million for dry process. Ten units are engaged in the manufacture of cement mill machinery out of which eight units manufacture complete cement plant; some of them can also take up manufacture of shaft kiln plant with a capacity ranging from 30 to 200 tonnes per day based on indigenous know-how. In 1970, the installed capacity in this field was Rs. 260 million while production was of the order of over Rs. 840 million. Boilers and boiler mounting industry is another improved line of manufacturing activity that has developed well in India. The industry is in a position to supply different types of boilers like small package boilers, industrial type boilers, waste heat boilers and thermal power station boilers etc. The public sector unit M/s. Bharat Heavy Electricals Ltd., Tiruchirapalli, recently secured orders for the supply of boilers to countries like Malaysia. Presently, there are 13 units engaged in the manufacture of boilers.

With five units in production, the output of printing machinery in 1970 was of the order of Rs. 3 million as against an installed capacity of Rs. 8.6 million. With the addition of one more unit in the following year the capacity went up to Rs. 9.6 million and production was Rs. 3.5 million. One of the units has reported production of platen press during 1971. Recently a number of schemes for the manufacture of various types of printing machinery such as cylinder printing machines offset printing machines, rotary machines, paper cutting machines etc. were approved. Further capacity is also anticipated.

Different types of gears and marine gears are being produced by thirteen units presently. They are in a position to manufacture gear boxes, using various types of gears such as spur gears, helical gear, worm gear, double helical gears etc. for power transmission and speed reduction. One unit is also producing PIV gears. The value of production of gears and marine gears during 1971 was estimated at Rs. 60 million as against Rs. 54.7 million in the preceding year.

Conveyors and elevators of different types are being manufactured indigenously by sixteen units. Besides, they are manufacturing various types of material handling equipment, stackers, reclaimers and ship loaders. The production of conveying equipment including wagon tipplers, stacker reclaimers, etc. during 1971 was estimated at Rs. 95 million as against Rs. 79 million in 1970.

Eleven units now, as against nine in 1970 are manufacturing various types of drilling equipment. Their production value during 1971 was about Rs. 16 million against an installed capacity of about Rs. 48 million.

At present there are thirteen units for the production of paper and pulp machinery with a total installed capacity of machinery worth about Rs. 66 million as against a total licensed capacity of Rs. 114 million. These units can supply large, medium and small-scale pulp and paper making plants as also board mill plants, paper coating plants, tissue making plants and a number of individual items such as fourdinier wire cloth, brown stock washers, bleach washers, bamboo clippers, screens, shells and blocks for conical refiners, calendar bowls etc. Production during 1971 was about Rs. 52 million.

Production in the chemical and pharmaceutical machinery has steadily increased from Rs. 50 million in 1963 to about Rs. 183 million in 1971. The industry has also entered the export market by exporting water treatment plant and solvent extraction plant. There are fiftynine units in the private sector licensed for the manufacture of different types of chemical and pharmaceutical machinery with a total licensed capacity of about Rs. 310 million per annum. Also there are three units in the public sector to manufacture different types of pressure vessels, heat exchangers etc. for a total capacity of 25310 tonnes per annum. During 1971 more proposals for the manufacture of various items of chemical machinery were cleared. Existing manufacturing units in the line can manufacture diverse types of plants, such as sulphuric acid plant superphosphate plant, water treatment plant, solvent extraction

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lant, fatty acid plant, alcohol plant, and a umber of miscellaneous equipment such as pressure essels, heat exchangers, distillation columns, fixed eaters, neutralizers, condensors, pumps and compressors etc.

Out of the three units licensed to manufacture steel plant equipment, two are already in production. One in the public sector, M/s. Heavy Engineering Corporation, Ranchi, have a capacity for the manufacture of 80,000 tonnes of plant equipment for coke ovens, blast furnaces, rolling mills, ladle cars, pig casting machine etc. The second public sector unit in the field, M/s. Triveni Structurals, Naini, is licensed for the manufacture of crucibles, blast furnace and plate work for a capacity of 2,000 tonnes. Production of steel plant equipment during 1971 in the entire country is estimated at Rs. 163 million compared to Rs. 116 million during 1970.

Manufacture of tea processing machinery has reached a high level of sophistication in regard to the range and volume of production as also in terms of quality and supply of technical know-how. The total installed capacity of six units for this machinery is of the order of Rs. 25 million per annum and the items manufactured indigenously cover almost the entire range of equipment required for processing of tea. The major items comprise of CTC machines, tea rollers, tea brakers storage bins, weathering machine etc.

Among the industrial machinery manufactured in India weighing machinery has been fairly well established. Its licensed capacity is of Rs. 30 million per annum and it manufactures a range of weighing machines for domestic balances to heavy duty railway weigh bridges. The range includes spring balances, crane weighers upto a capacity of 5 tonnes, semi and self-indicating counter scales, personal weighers, steel yard and platform type weighing machines, dormant weighers, milk weighing machines, airport baggage weighers, and weigh bridges of both road and railway type. Modern rice mill machinery is another line whose capacity and production went up recently to Rs. 101.2 million and Rs. 21.3 million respectively during 1970. The items manufactured under this industry include vital components of paddy cleaners, rice huller/sheller, auto separator, rice polishers, rice aspirator, rotary sieve, etc. all of which go to make a complete rice milling plant. The oil mill machinery is also established well in India. Ten units with registered licensed capacity of Rs. 33.4 million manufacture oil expellers of different ranges, types and sizes, filter presses, rotary oil mills, copra cutters, disintegrators, decorticators, delinting machines, seed cleaners, hydrogenation plants. Some of the oil mill machinery units have shown encouraging export performance in recent years and are now in a position to impart technical know-how and enter into joint ventures with foreign firms.

The machinery for leather and leather goods including footwear is produced by three units at present, two of which are exclusively for the manufacture of machinery for leather and leather goods and leather footwear and the third for the manufacture of PVC and PVC rubber footwear. The total licensed capacity is of the order of Rs. 15.5 million worth of machinery per annum. The items manufactured include sole cutting press, polishing machines, heel scoring machines, rubber mill vulcanising press etc.

Among other sectors of industrial machinery that have made good progress in recent years in India include tobacco processing machinery rayon and synthetic fibre plants and mechinery, industrial roller flour mill machinery, plants for soaps and detergents, building and construction machinery, metallurgical machinery other than steel plant equipment, biscuit and bread making plants, gas air separation plants, dairy machinery, pesticide equipment including agricultural sprayers, dusters, manual and power driven type, industrial filtration equipment including centrifuges, plants for asbestos cement products, rubber machinery, ceramic machinery, industrial oil gas burners, vacuum coating and impregnating plants including coil winding machinery, industrial screens, food processing machinery, industrial drycleaning and laundry equipment, paints and varnish machinery, electroplating equipment etc. ☐

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NON-TRADITIONAL EXPORTS ON RISE

The share of non-traditional products in India's export trade has been on constant rise. A wide variety of manufactured and semi-manufactured items have already become popular in the competitive world markets. This trend has not only helped the quantum of exports to improve but brighten the image of the economy as a manufacturer/exporter of sophisticated products. Among the various exporters that have contributed to such export diversification, M/s. Tata Exports Limited, Shivsagar Estates, Annie Besant Road, Worli, Bombay-18 have come to be recognised as a leading exporter and were recently presented an award for outstanding achievement in the export field by the Indian Government.

The firm has pioneered development of exports of a large number of new products to new markets. It was amongst one of the first to export from India, on a commercial scale, electrical cables, steel pipes and conduits. Pressed steel tanks, commercial vehicles, bus bodies, other automotive products, passenger rail coaches, and accessories, bridge girders, overhead cranes, sluice gates, transformers and swit chargears, refractories press tools, fork lift trucks, etc. are some of the other products that the firm has succeded to supply overseas.

From Rs. 5.2 million worth of exports in 1963-64, the company has increased foreign exchange earnings to about Rs. 240.6 million in 1970-71. In fact, the company's exports of engineering products contributed over 11.5 per cent of total country's exports.

In 1970-71, the value of the company's engineering products exports was Rs. 132.9 million as against Rs. 93.21 million in the preceding year. Their steel exports amounted to Rs. 64.71 million and textile exports were of the order of Rs. 20.87 million, while those of groundnut extractions and groundnut seeds Rs. 9.72 million, seafoods Rs. 6.62 million, cotton yarn Rs. 4.04 million, mango juice Rs. 1.46 million and chemicals Rs. 0.15 million.

M/s. Tata Exports are currently exporting to various countries, of which Arab Republic of Egypt, Nigeria, Burma, Iran, Ceylon, Iraq, U.S.A., Sudan, Yugoslavia, Australia, U.K., Indonesia, Qatar, Belgium, Thailand, Jordan, Kuwait, Philippines, Singapore, Kenya and Hong Kong, stand prominent.

The firm succeeded in concluding large value contracts for several exporting manufacturers for a wide range of products as also in setting up of assembly lines for commercial vehicles in collaboration with M/s. Tata Engineering and Locomotive Company Limited in Arab Republic of Egypt and Indonesia.

Amongst the outstanding export contracts secured by the firm, mention may be made of the contract being executed for rails and accessories signed with the Union of Burma Railways worth Rs. 7 million for the products of the companies like M/s. Tata Iron & Steel Co. Ltd., Guest Keen Williams Ltd., Hindustan Iron & Steel Co., Burn & Co. Ltd. and M/s. Richardson & Cruddas Ltd. The firm undertook efforts to resolve the problems of these supporting manufacturers for obtaining raw materials and for co-ordination of supply for shipments in accordance with requirements and schedule of the overseas customers.

As agents of the Government of Qatar for servicing their purchases in India under the Commodity Agreement between the Governments of Qater and India, M/s. Tata Exports have assisted in facilitating exports against their overseas balances of £ sterling 2.25 million lying in India.

The company is presently exploring new marketing approaches such as maintaining inventories of finished goods in its own warehouses in India and abroad. They are also on the look out for organisations in which it might mark investment and set up manufacturing units which are cent per cent export oriented.

SPECTACLE FRAMES AND EXPORT TRADE

India's exports of spectacle frames have been improving year after year. In 1970-71 the export value of the order was Rs. 3.7 million. In the first three quarters of 1971-72 the foreign exchange earned was Rs. 2.94 million. Plastic spectacle frames made of plastic and other materials, as also for goggles etc. are among the varieties of export. The plastic frames are exported mainly to U.S.S.R., U. K., Sudan and U.S.A. Sudan, Mauritius and Nigeria are among the principal buyers for goggles.

M/s. Elite Optical Industries, 31 Mount Road, Guindy, Madras-32 have contributed nearly one fourth of the country's export trade in spectacle frames at about Rs. 0.88 million during 1970-71. The firm manufactures about 35 different models, both celluloid and celluloid/rolled gold combination spectacle frames.

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HEAVY MECHANICAL ENGINEERING INDUSTRIES —An Outlook

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Their export sales have gone up in overseas markets especially to U.K., Ireland, West Germany, Scandinavian countries, U.S.S.R., Yugoslavia, Africa and South East Asian countries. U.S.S.R. and Yugoslavia constituted the principal Yugoslavia markets of the firm at Rs. 0.4 million in 1970-71. U.K. and Ireland purchased worth Rs. 0.27 million, West Germany Rs. 0.11 million and Africa and West Asia Rs. 0.10 million.

Starting from a modest production of about 20 dozen frames per day in 1957, the firm is now able to produce between 100 and 120 dozen pieces per day. The principal raw material for the manufacture of the firms' frames is cellulose nitrate and cellulose acetate sheets. The frame is manufactured completely on a milling process mainly utilising indigenous machines.

RECORD BUSINESS AT POZNAN FAIR

A record on the spot business of Rs. 12.5 million was secured at the India Pavilion at Poznan International Fair (Poland) which is one of the most important fairs in East Europe attracting buyers, the would over. An additional business worth about Rs. 30 million is under negotiation.

Most of the business, already secured or is under negotiation is in respect of India's non-traditional export products, particularly engineering items and consumer durables.

Besides the actual business transacted or negotiated, several trade enquiries have been received from Polish buying organisations for a wide range of Indian products. These included sanitary fittings, automobile ancillaries, shoes and leather garments, hardness testing machines, machine tools and handtools, industrial valves, refrigeration and air-conditioning equipment, aluminium, stainless steel cutlery and table-ware, carpets, textiles and measuring instruments.

Following the Indian participation in the Fair, trade delegations from Poland are expected to visit India to conclude agreements with the parties of consumer and other products.

India's volume of exports to Poland during 1970-71 was of the order of Rs. 221.16 million. In the same year Polish supplies to India amounted to Rs. 279.94 million. During the first three quarters of 1971-72, Indian exports amounted to Rs. 115.58 million.

ORDERS FOR SILK AT BRNO FAIR

The exposition of India's silk fabrics at the Third International Consumer Goods Fair at Brno (Czechoslovakia) is reported to have created intensive enthusiasm in the Czech market. The entire bulk of silk exhibits which included a full range of mulberry fabrics from Mysore, Kashmir, West Bengal and Tamil Nadu, tasar fabrics from Madhya Pradesh and Bihar as also a range of readymade garments were sold enblock immediately after the conclusion of the fair.

The exposition of the silk fabrics at the fair was organised by the Central Silk Board, 95-B, Marine Drive, Bombay-2. Following the Board's discussions with two Czech Corporations responsible for external trade, namely, M/s. Tuzex and M/s. Centrotex, orders for silk dress materials worth about Rs. 0.5 million are likely to be placed by August this year. The Czech Corporations desire that the shipments should be completed by September/October this year.

In addition to the Czech interest, delegations from Hungary, Arab Republic of Egypt and Mongolia have visited the silk stall at the Fair and evinced keen interest in the Indian silks.

A kaftan type heavy silk gown with embroidered front and a silk maxi in exquisite batik print entered by Indian silk manufacturers were adjudged as the best evening attires by top Czech experts and dress designers at the international fashion show organised at Brno to mark the Third International Consumer Goods Fair. The participation of silk garment manufacturers was organised by the Central Silk Board and the Cotton Textile Export Promotion Council, in joint collaboration with the Indian Council of Trade Fairs and Exhibitions, Bombay.

ANOTHER CONTRACT FROM MALAYSIA SECURED

M/s. Testeels Ltd., Ahmedabad have secured an export order from the National Electricity Board, Malaysia for over 1000 tonnes of transmission line towers valued at Rs. 1.8 million.

This order has been secured against stiff competition both from international as well as Indian manufacturers. The entire order is expected to be completed by March 1973. The above firm have enquiries on hand from Thailand, New Zealand, Australia etc. for both transmission line towers and chemical plants and equipment.

The Malaysia Electricity Board had also selected M/s. Bharat Heavy Electricals Limited for the award of export order worth Rs. 100 million for the supply of three oil fired boilers each having a capacity of 120 KW with an output of 840,000 lbs. per hour and a super-heat temperature of 1,000 degree F. The same Board of Malaysia had also placed an order on M/s. Heavy Electricals (India) Ltd., Bhopal for the supply of power transformers worth about Rs. 7.5 million.

EXPORT PERFORMANCE AND POTENTIAL

PRODUCTION OF DRUGS AND PHARMACEUTICALS UP

The total value of drugs and pharmaceuticals produced by the units in the organised sector of the Indian economy during 1971 is estimated to be of the order of Rs. 3000 million as against an estimated value of Rs. 2500 million during 1970.

There are over 2200 units in the manufacture of variety of drugs and pharmaceuticals in India, of which nearly 100 units are in the organised sector.

Production of most of the essential drugs recorded improvement in 1971. Major increases were noticeable in respect of penicillin, tetracycline (antibiotics), chlorophropamide (anti-diabetic drugs), aspirin and phenacetin and analygin (anti-pyretics/ analgessies), I.N.H. (anti-T. B. drugs), xylocaine (anaesthetics), sulpha drugs, vitamin B_2, Vitamin B_1 and other drugs such as - saccharine, meprobamate, promethazine, folic acid and erythromycin base.

Substantial increase over the 1970 production has been registered in the case of items like streptomycin, chloramphenicol, P.A.S. and its salts, thiacetazone, procaine, opium alkaloids, vitamin A, Vitamin C, Vitamin D_2 and D_3, calcium gluconate/laco biomate, diethyl carbamazine citrate, buclizine, amidopyrin, phenobarbitone and pethidine HCL.

One unit in Gujarat State, namely, M/s. Alembic Chemical Works Co. Ltd., Baroda have commenced the production of Erythromycin base from December 1970 and have shown increase in production. M/s. Indian Process Chemical Laboratory, Bangalore have commenced production of new item viz. diodo-dydroxy-quinoline from April 1971.

Several new schemes for setting up capacities for the manufacture of new items and also for expansion of the existing capacities have been licensed during the year including those for pheny butazone, plastic disposable transfusion sets, Vitaman E, rutin (Vitamin P), paracetanol, di-iodo hydroxy-quinoline, theophyllin, aminophylline and caffeine and expansion in capacity for the production of items like sulphanilamide, capsules hard gelatine, Vitamin, A phenylbutazone, P.A.S. and its salts and thiacetazone.

Export trade in medicinal and pharmaceutical products registered rise from Rs. 64.43 million in the first three quarters of 1970-71 to Rs. 71.88 million in the corresponding period of 1971-72. In the full year of 1970-71 these exports were of the order of Rs. 84.65 million.

EXPORT OF TELEPRINTERS

A good beginning has been made by the teleprinter industry in India in the export market. Already some supplies were made to Kuwait, Iran, Bhutan, Ceylon, Yemen and Nepal.

M/s. Hindustan Teleprinters Limited, Madras, the only manufacturing unit in India have recently received an order for 50 Persian teleprinters from Iran. The execution of the order would not be difficult for the company as the Persian key-board would need only a slight alteration of Arabic keyboard which is already being prepared by the company for export.

Teleprinters exports are likely to reach 120 numbers in the current year as against 80 last year, according to M/s. Hindustan Teleprinters.

The range of products manufactured by the firm now includes type teleprinters, page teleprinters, automatic tape transmitters, tape transmitters adjustments, reperforating adjustments, signalling power supply units etc. Apart from manufacturing standard version of teleprinters, they are manufacturing and supplying to meet the specific requirements of the customers.

EXPORT ORDER OF LEATHER GARMENTS

The Leather Export Promotion Council, Madras has received an export order for supply of one million pieces of leather garments. The garments made in India have captured the rising demand in world markets, particularly in Europe.

Export of vegetable tanned leather and semi-tanned leather is expected to reach Rs. 970 million and of the finished product Rs. 60 million during 1972, according to the Council.

EXPORT TRADE IN TEA

India's export trade of tea and mate rose to about Rs. 1225 million in the first three quarters of 1971-72 (April-December 1971) as compared to Rs. 1201.5 million in the same period of the preceding year. Black tea leaf in bulk was exported in the period reviewed during 1971-72 to the tune of 145.75 million kg. at a value of Rs. 1125.46 million. U.K. absorbed 54.38 million kg. at Rs. 402.51 million. U.S.S.R. was the next best market with a purchase value of Rs. 268 million (31.8 million kg.). Other importers were U.S.A. (Rs. 55.38 million), Iraq (Rs. 41.84 million), Arab Republic of Egypt (Rs. 38.48 million), Ireland (Rs. 37.05 million), Iran (Rs. 35.38 million), German Federal Republic (Rs. 35.03 million), Canada (Rs. 23.19 million), Netherlands (Rs. 17.50 million), Australia (Rs. 15.11 million), Poland (Rs. 14.23 million), Sudan (Rs. 14.17 million).

Black tea dust in bulk was mainly supplied to Afghanistan to the tune of 2.8 million kg. at a value of Rs. 19.95 million. The total exports during the period under review were 3.93 million kg. at a value of Rs. 28.10 million. Black tea in bags up to 20 kg. was supplied overseas and earned an export value of Rs. 60.60 million (8.52 million kg.). More than half of these exports were directed to Sudan at Rs. 33.06 million (5.26 million kg.). Other major importers were Afghanistan, Bahrain Islands, Dubai, Iraq, Kuwait, Qatar, Arab Republic of Egypt and U.S.A.

Exports of green tea were about Rs. 10.82 million in the first three quarters of 1971-72 (95 million kg.), Afghanistan alone absorbed 1.63 million kg. of green tea at Rs. 8.42 million; Morocco, Japan, and U.S.A. were the other important buyers of this variety from India.

AUTOMOBILE TYRES FOR EXPORT

Export value of automotive tyres and tubes is expected to touch a record of Rs. 110 million during 1971-72. The automotive tyre industry has registered notable progress during 1971 and the production rose from 4 million tyres in 1970 to 4.6 million in 1971.

SOAPS EARN MORE FOREIGN EXCHANGE

In the first three quarters of 1971-72 over Rs. 9.37 million worth of foreign exchange was earned through exports of soaps, cleansing and polishing preparations. In the corresponding period of the previous year the export value in the line was Rs. 7.62 million only. This rising trend is indicative of the overall improvement in the exports in the entire year of 1971-72.

Among the export varieties of soaps, toilet soaps earned Rs. 1.19 million in the period under review. House-hold, laundry soaps were supplied overseas to the extent of Rs. 1.5 million. Soap flakes, chips and powder netted Rs. 1 million. Soap bars and blocks, tablets and cakes, medicated soaps are the other varieties exported in the line.

Against an installed capacity at 217,822 tonnes in the year in the organized sector, soap production in 1971-72 is estimated at 270,813 tonnes as compared to 232,400 tonnes during 1970.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

NEW LINES OF ELECTRONIC MANUFACTURE

As many as 14 new items were manufactured in India for the first time during 1971 in the field of electronics and telecommunications, according to the information available from the office of the Director General of Technical Development of the Ministry of Industrial Development.

The new items manufactured include single channel analyser, frequency counter, timers, flashers, voltage dependent resisters, stereo equipment, automatic solid state valtage regulator and stabilizer, solid state variable speed drive, electronic desk calculator, single phase preventer, magnetic tapes etc.

The year 1971 witnessed progress in production in practically all the electronic items manufactured including electronic equipment for entertainment like radio receivers, television receivers, tape recorders, record players and amplifiers, cinematographic equipment etc.

Production of radio receivers increased from 1.77 million numbers during 1970 to 1.97 million numbers in 1971. Likewise production of TV receivers improved from 5128 numbers to 7790 numbers; P.A. equipment from 3092 numbers to 4182 numbers and record players from 48,520 numbers to 69,090 numbers. One firm has started during the year 1971 the manufacture of stereophonic amplifiers.

In the electronic equipment group for professional end use such as electronic testing instruments/equipment computers etc. also there has been substantial progress during 1971. A number of new items has been taken up for the manufacture and also the ranges of the existing electronic instruments have been extended. Production of computers increased from 6 numbers in 1970 to 23 numbers in 1971, and that of electronic instruments/equipment from 249 numbers to 325 numbers.

Production rise was recorded in respect of telecommunication apparatus like wireless communication equipment, microwave equipment, railway signalling equipment, radar and other special equipment and telephone and telegraphic equipment. M/s. Bharat Electronics Limited are manufacturing wireless, communication, radar and other special equipment for defence. There has been an improvement in their production as also in the field of telephone and teleprinters, the production of teleprinters increased from 5124 numbers in 1970 to 5481 numbers in 1971. The value of production of telephone and telegraphic equipment increased from Rs. 227.2 million to Rs. 300 million. In the electronic components manufacturing sector practically all components including resisters, capacitors, semi-conductors, ferrites, permanent magnets, magnetic tapes, relays, connectors etc. have witnessed substantial increases in production in 1971 as compared to 1970. The total value of production of electronic components by the units borne on the list of the Directorate General of Technical Development is about Rs. 220 to 230 million.

Production of transistors and diodes improved from 27.78 million numbers in 1970 to 35.20 million numbers in 1971; receiving valves from 5.006 million numbers to 6.086 million numbers; carbon film resisters from 60.78 million numbers to 95.12 million numbers: potentiometers from 3.356 million numbers to 4.722 million numbers; band change switches from 1.98 million numbers to 2 89 million numbers; paper capacitors from 8.027 million numbers to 6.30 million numbers; ceramic capacitors from 36.614 million numbers to 43.18 million numbers; plastic film capacitors from 27.97 million numbers to 29.90 million numbers and permanent magnets from 375 tonnes to 410 tonnes.

DIVERSIFICATION OF INSTRUMENT INDUSTRY

Incorporating modern trends of development, the instruments industry in India has come to make a mark in its precision, accuracy and sophistication. Most of the industries under the instruments category are classified in India as key industries as they are important for promoting industrial progress. The total production of instruments in India is estimated at about Rs. 400 million per annum.

The instruments manufactured in India include a wide range : scientific, optical, surveying and mathematical instruments; industrial process control instruments; water metres; house service metres; electrical recording and measuring instruments; X-ray and electro-medical equipment; medical and surgical equipment; photographic and photo-copying equipment and component industries such as industrial jewels and electrical bimetal contacts.

The new items manufactured for the first time in the country during 1971 included : electrostatic photo copying (Zerographic) machine, cardiograph-recording (ECG) paper and blood transfusion and infusion equipment.

Two public sector undertakings in the country, namely, M/s. Instrumentation Limited, Kotah and M/s. National Instruments, Calcutta have shown good progress in the field of production; the latter establishment have taken up the production of defence equipment. During 1971, M/s. Instrumentation Limited, Kotah put through their plans of diversification and they are now poised to produce a wider range of products than before. Besides, a number of firms was permitted to diversify their products.

Production of scientific optical survey and medical instruments was worth Rs. 24.1 million during 1971. M/s. National Instruments Limited, Calcutta produced instruments worth more than Rs. 6 million during the year.

Industrial process control instruments industry witnessed substantial production rise in 1971. The total value of production in the line was estimated at Rs. 67.6 million during 1971 as against Rs. 57 2 million in the previous year. The production growth was mainly due to the contribution made by M/s. Instrumentation Limited, Kotah who have been permitted to produce pneumatic instruments also.

Production of water metres was of the order of 160,000 numbers in 1970. In the following year the output was estimated to have crossed 165,000 numbers.

There was a rise in the production value of X-ray and electro-medical equipment also, from Rs. 15 million to Rs. 25.5 million. In addition to the X-ray equipment upto 500 M.A. capacity produced in the country so far, M/s. Bharat Electronics Limited have gone into production of X-ray tubes - a component used in particular X-ray machine. M/s. Tokshu Menon Paper Manufacturing Company, Madras have started producing ECG paper for use in ECG machines. The quality of production is stated to be competitive and the firm is trying to export in the recent future. In the medical and surgical appliances sector there was an appreciable increase in the total production in 1971 as compared to that of 1970. M/s. Laboratory Vifor have gone into production of blood transfusion and infusion equipment. The value of production of this equipment by the firm is of the order of Rs. 5 million per annum.

In the photographic and photo-copying instruments group, the type of photo-copying machines have already been produced by M/s. Macneill and Barry. Additionally, M/s. Advani Oerlikon have produced zerographic machines with know-how received from National Physical Laboratory, New Delhi. M/s. New India Industries, Baroda, have also gone into trial production of cameras for export purposes. The total value of production during 1971 is expected to be around Rs. 4.7 million as against production worth Rs. 3.5 million during 1970.

Production of house service metres, both single phase and poly-phase has gone up during 1971. The total production estimated during the year was 2.2 million numbers of single phase and 650,000 numbers of poly-phase meters as against 1.64 million numbers of single phase and 570,000 numbers of polyphase meters during 1970.

The production of various types of electro-measuring instruments also has gone up during the year. M/s. Philips India Ltd. have gone into production of moving coil instruments. Another firm have developed Trivectometer, utilising indigenous know-how and it is expected that they will go into production in the current year.

The Instruments industry as a whole depends largely on imported components. Development and production of sophisticated instruments like jewels have therefore to be increased to substitute the imported components. In the field, M/s. Industrial Jewels Limited, Bombay have played an important role in producing different types of jewels required by the meter industry. Presently these jewels are banned for import. The total production achieved in the jewels industry is about Rs. 5 million and the Bombay firm were issued a letter of intent for 55 million pieces of jewels of which the firm will export 90 per cent of their production.

PAPER AND ALLIED INDUSTRIES

Production of all types of paper and paper-board which was merely 135,000 tonnes in 1955 rose to about 800,000 tonnes per annum now. Spread all over the country, the paper industry now caters to the entire requirements in respect of common grades, writing, printing, wrapping and packing papers and paper boards. The industry has already achieved good success in the export field. The export value in 1970-71 was of the order of Rs. 54.83 million and in the first three quarters of the following year the value was around Rs. 25.22 million.

Current indigenous production of newsprint is of the order of 40,000 tonnes per annum while paper board is 180,000 tonnes which is expected to increase to 300,000 tonnes by 1973-74. In order to augment paper production, a crash programme has been instituted under which capacity expansion licences were issued to 15 of the existing manufacturers. An addition of about 100,000 tonnes capacity is likely to be made available by 1973. During 1971 production of paper and paper board amounted to 775,000 tonnes.

M/s. Hindustan Paper Corporation, a public sector undertaking proposed to set up pulp and paper mills in Nagaland in Assam in view of the confirmable supply position of raw material in this area.

The only newsprint mill, M/s. Nepa Mills are implementing a substantial expansion programme to raise the capacity to 75,000 tonnes per year by 1973. The mill produced 7500 tonnes more of newsprint during 1971 as compared to the previous year.

INDIA'S LARGEST OIL REFINERY

A six million tonne capacity oil refinery is to be set up at Mathura in Uttar Pradesh. It is estimated that savings in foreign exchange arising out of imports of crude oil instead products would be about Rs. 400 million. This North West Refinery would be the largest in India.

The range of production of the refinery consists of motor spirit, naphtha, high speed diesel oil, kerosene oil, diesel oil, furnace oil including feed stocks, LPG and Bitumen.

The production capacity categorywise would be: 495,000 tonnes of motor spirit, 369,000 tonnes of naphtha; 17 million tonnes of high speed diesel oil, 1.5 million tonnes of kerosene oil, 90,000 tonnes of light diesel oil, 820,000 tonnes of furnace oil including fertiliser feed stocks, 50,000 tonnes of LPG and 278 tonnes of bitumen.

Total investment on refinery pipeline offshore terminal and on-shore facilities on the basis of tentative estimates is likely to be Rs. 1611.5 million including foreign exchange component of Rs. 309 million. The refinery (excluding township) is likely to cost Rs. 878 million and pipelines Rs. 749 million. Investment on offshore terminal is expected to be Rs. 29 million. Another Rs. 46.5 million are likely to be spent on on-shore facilities.

Special feature of refinery will be, likely provision of Rs. 1 million tonnes hydro cracker involving sophisticated technology to convert heavy oils into more valuable middle distillates for which there is large and growing demand in Northwest region. Hydrocracker will enable refinery to produce as much as 57 per cent middle distillates as compared to average of 47 per cent being obtained now. The first of its kind in India, hydrocracker would pave way for acquiring technical know-how and expertise in this sophisticated field so that more such hydrocrackers can be put up as and when necessary.

The refinery will be able to feed about 4 to 6 fertiliser plants. Naphtha from this refinery will meet essential needs of large fertiliser factory at Kanpur, to East and at Kotah to South of Mathura. It will also produce feed stock for Nangal fertiliser factory and for the forthcoming future fertiliser plants which may be set up in the region.

DEVELOPMENT OF TELEVISION IN INDIA

Among the various items produced in India as Electronic Equipment for entertainment, television occupies an important place. Introduction of television in India dates back to year 1959 (September) when the All India Radio set up an experimental station at New Delhi. Constant research and development in this field has now enabled the TV centre to widen television network in the country.

With the beginning as a pilot project, the TV Centre at Delhi has increased its range and also the transmission time. With the erection of new TV tower at New Delhi, the range of the TV station can cover area in the radius of 60 kilometers covering some parts of Punjab, Haryana and UP. Thus, Delhi TV centre has enabled the people of these states to view the programmes telecasted by the Station. Today TV audience in Delhi and in the neighbouring areas is enormously increasing and TV programmes are gaining popularity day by day. There are about 38000 TV sets, being utilised for viewing programmes.

The programmes under telecasting, cover many subjects but education and farm programmes are given more prominence along with other programmes for entertainment, news, folk music, folk dance, discussions of current topics, interviews with experts and the prominent personalities, literacy programmes, programmes for women and children, film coverage of important events in India and abroad and feature films and documentaries. Today the total weekly duration of TV programmes is about 32 hours with an additional one hour afternoon transmission on Sundays.

Expansion Programmes

Along with the Delhi TV Centre, new TV Stations have been proposed to be set up at Bombay and Srinagar under the Fourth Five Year Plan with relaying station at Poona. During the short span of two years, new TV Stations have also been proposed to be installed at Madras, Calcutta and Lucknow (with relaying facilities to Kanpur). The development of the Delhi TV Station would provide relay facilities to parts of Punjab and Uttar Pradesh. A television transmission station at Amritsar has also been planned. This station is expected to telecast programmes prepared specially for it at the Delhi TV Station. The establishment work of Bombay and Srinagar TV Stations is being done very rapidly. The Bombay TV Station will comprise TV Studio and transmiter at Worli and relay transmitter on Sinhagarh Hill near Poona. The TV Station at Madras with relay facilities to Durgapur - Asansol area and Lucknow Station with relay facilities to Kanpur are expected to be completed by December 1973 and by the end of March 1974 respectively. When the television expansion programmes are completed by the end of the fourth Five Year Plan, it is estimated that about 40 million of India's population will be covered under the television programmes. More than 50 per cent of the population will be from rural areas.

With the growing television network in the country, increasing number of trained programmes and technical personnel would be necessary. Keeping in view this requirement, a phased programme for training TV personnel has been taken up. A training centre at the Film Institute at Poona has already been set up with the help of United Nations Development Agency. The centre, at present is located in Delhi till the building for training centre is completed at Poona.

India as a signitory to the agreement between India and the USA in 1969, would be able to cover the programmes directly from Satellite. It would help to cover about 5000 villages in India by making use of advanced space technology bringing instructional television programmes to the rural population. The satellite will be provided by the National Aeronautics and Space Administration (NASA) of U.S.A. The satellite is expected to be available to India for telecasting purpose by 1974. The Satellite, a new ATS-F type, can be directly beamed into even the most remote regions without the aid of ground stations.

India, today, capable of producing a wide variety of electronic equipment can produce television indigenously without any foreign collaboration. The Electronics Commission appointed by the Government of India, has decided that the licensing of additional capacity for the manufacture of TV sets should be based on guideline that there is no need for foreign collaboration or technical know-how for the manufacture of TV sets in India.

HIGHER OUTPUT OF TOILET PREPARATIONS

There has been a substantial increase in the output of toilet preparations and cosmetics in the country.

The output of tooth powder was almost doubled over the past year. It rose from 488,000 kg. in 1970 to 815,000 kgs. in 1971. Tooth paste recorded an output af 5.03 million kgs. last year as against 4.86 million kgs. in the previous year.

The production of soap also registered a rise, from 232,000 tonnes in 1970 to nearly 271,000 tonnes in 1971.

The production of face cream rose from 753,000 kgs. in 1970 to 848,000 kgs. in 1971, marking an increase of nearly 10 per cent.

During the same period, face powder registered a four-fold increase from 14,202 kgs. to 53,098 kgs. The production of talcum powder went up by over 51,000 kgs. to 35.43 lakh kgs.

Increase was also recorded in the production of fatty acids, synthetic detergents and resin finishes.

MANUFACTURE OF WHITE OILS

The white oil industry in India which is in an infant stage, will soon produce white oil for first time in a sizeable quantity on scientific basis. A large plant for the manufacture for about 10,000 tonnes per annum of white oil is being put up by M/s. Nagpal Ambadi Petroleum Refining Limited, Madras. Keeping in view the rising demand for the production in the country there is scope for further expansion of this industry.

The Indian Institute of Petroleum, Dehra Dun are engaged in the refining operation for white oils of various grades, specially needed by pharmaceutical and cosmetic industries and have developed complete technical know-how for its manufacture. The applications of white mineral oils are varied. It may be mentioned illustratively that the end-user industries include petroleum jelly, pharmaceutical ointments, nasal sprays, egg processing, food processing, cosmetic industries, canning, plastic, leather and air filters.

Import of petroleum jelly has been banned by the Indian Government and is being manufactured from mico-crystalline wax by mixing with about 80 per cent of white oil. The demand for petroleum jelly has been established at about 6,000 tonnes per annum which is being met from domestic supplies.

The basic starting material for the manufacure of white oils is petroleum oils which are easily available in India. Lubricating oil fractions of desired properties specially viscosity and specific gravity are selected for this purpose. Most important refining materials used are Fuming Sulphuric Acid (Oleum) and bleaching clay. Both these materials are available indigenously.

CHEMICAL TO COMBAT WHEAT WEEDS DISCOVERED

The chemical controls of two highly destructive weeds affecting wheat known as wild oats (Avena Fatua) and Gulli Danda (Phalaris Minor) have been discovered by the Punjab Agricultural University for the first time in the world.

The University has found a chemical, trallate used by farmers in about 5000 hectares to be successful in combating the wild oats. For Phalaris Minor two chemicals–Nitrogen (tok-e-25) and methabenzthiaburon (tribunil) have been found to be effective. These chemicals give more than 90 per cent control of these weeds.

The two weeds locally called as Jaundhar and Gulli Danda are similar to wheat and both germinate and grow with the wheat crop. The resemblance with wheat makes their removal with hand very difficult and in cases of heavy infestation they threaten the very existence of wheat crop. The two weeds have a high multiplication rate and a single plant of Phalaris Minor produces 2000 to 3000 seeds in one season. These remain dormant till November when they start germinating along with the wheat crop.

The popular method which the farmers employ is to irrigate the infested field, make these weeds grow before sowing wheat and as soon as these grow, the field is ploughed and weeds destroyed. Although this method does not destory other weeds, the Wild Oats and Phalaris Minor are not much affected.

GASKETS FROM COIR PITH

A process for the manufacture of Gaskets firm Coir Pith has been developed by the National Chemical Laboratory, Poona. These gaskets could be used in automobile oil engines and similar equipment as a substitute of rubberized cork sheets. The importance of the NCL process is that coir pith available as waste from coir industry will replace the imported cork granules. This will effect a considerable saving in foreign exchange.

The NCL process consists of mixing the coir pith with neoprene and other ingredients and vulcanizing the mix in a press under pressure and temperature in suitable moulds. NCL has prepared coir pith gaskets of 18" x 18" size. The samples of the gaskets have been tested and found to meet the required specifications.

Coir pith and neoprene are the main raw materials required for the preparation of gaskets from coir pith. Except neoprene all other raw materials are indigenously available. Coir pith is a waste available in the coir industry. The major equipment needed are, mixing mill and hydraulic press. These can be fabricated indigenously. The process is available with the National Research Development Corporation of India.

PROCESS DEVELOPED FOR P-NITROPHENOL

A process for the manufacture of P-nitrophenol are has been successfully developed by the National Chemical Laboratory, Poona. The process consists of hydrolysis of p-nitrochlorobenzene at elavated temperature with aqueous caustic soda. The process has been standardized on laboratory scale and has been worked out at 25 kg. per batch scale.

P-nitrophenol is used for the manufacture of pesticide parathion. It is also used in the preparation of para-acetamol, an antipyretic drug. Estimated demand for parathion manufacture alone is of the order of 300 tonnes per year. At present two firms are manuturing p-nitrophenol only on small-scale.

Most of the raw materials for the manufacture of p-nitrophenol are available within the country except p-nitrochlorobenzene which will have to be imported. Main items of plant and machinery required for the manufacture of this material are also available within the country.

NEW PROCESS FOR WATER SOLUBLE VARNISHES AND PAINTS

A process to manufacture water-soluble varnishes and paints from cardanol - a major constituent of cashewnut shell liquid, has been developed by the Regional Research Laboratory, Hyderabad.

Cardanol eliminates the fire hazard of organic solvents. These compositions are also highly suitable for the electro-depositions of paints on the metal surface. This technique is widely applied in the automobile industry.

The water soluble varnishes are applied as a thin film on mild steel and baked at temperatures between 120 and 160 degree C for one to two hours. On baking they yield a yellow golden glossy film which is quite flexible, hard and resistent to water alkali and acid solutions and common organic solvents. Satisfactory paints are also prepared with the varnish.

ELECTROLYTIC REDUCTION OF TITANIC SULPHATE SOLUTION TO TITANOUS SULPHATE

A process for the manufacture of electrolytic reduction of titanic sulphate solution to titanous sulphate has been developed at Central Electro Chemical Research Institute (CECRI), Karaikudi. The process is available with the National Research Development Corporation of India, New Delhi.

The process developed at CECRI, Karaikudi, consists in the electrolytic reduction of titanic sulphate solution in an electrolytic cell consisting of lead anode wrapped with blue asbestos cloth or rope and amalgamated lead cathode.

The electrolysis is carried out at a cathode current density of 0.5 to 10 amp/dm2 and at a temperature of 25°C to 60°C. A current efficiency of 75-85% is obtained when the cathode is kept rotating. The energy consumption 0.27 to 0.35 kwh/kg. of titanous sulphate solution. An inert atmosphere such as carbon dioxide is maintained during electrolysis to prevent oxidation of titanous sulphate by air. Complete conversion of titanic sulphate is possible by passing excess quantity the electricity of the order of 20% to 30% in case of rotating cathode.

Rectifier, load lined electrolytic cells, cathode. rotating assembly with motors, diaphragm material, storage tanks, silica, immersion heaters, carbondioxide cylinders, which are available within the country, are the items of plant and machinery required.

POTENTIOMETRIC STRIP CHART RECORDER

A process for the manufacture of Potentiometric strip chart recorder has been developed at National Chemical Laboratory, Poona.

The potentiometric strip chart recorder is an instrument working on the principle of a self-balancing mechanism by an automatic serve system. The purpose of this recording potentiometer is to move a pen across a chart paper according to some function of an input, which can be a temperature, pressure or flow.

Based on the above principle, this self-balancing potentiometric recorder having a valve amplifier has been developed by NCL. This instrument can be used in conjuction with Gas Chromatograph, Polarograph, IR and UV Spectrophotometers etc. This instrument can also be used in the process industry for the measurement of temperature, pressure, displacement and flow.

All the components raw materials except the electromechanical chopper are available within the country. The process is available with the National Research Development Corporation of India.

NEW PROCESS FOR CARBON BLACK

The Regional Research Laboratory, Jorhat has developed a process for the manufacture of carbon black.

Carbon black which is extensively used in the rubber industry was being imported uptill now in large quantities because of its low production in India. The new process, now developed by the Regional Research Laboratory, Jorhat will not only help to produce carbon black indigenously but also will pave way for exports.

The process is now available with the National Research Development Corporation of India, New Delhi.

THREE PROCESSES FOR INSTANT TEA

In India 3 processes for making instant tea have been developed by the Calcutta University and the Central Food Technological Research Institute, Mysore.

In two of these processes, developed by the Calcutta University, black tea and green leaf have been used as raw material. In the third process, devloped by the Central Food Technological Research Institute, green leaf tea has been used as a raw material.

All these processes have yielded very satisfactory products but improvements in flavour and cold water solubility have been found necessary.

The researches were carried out under schemes financed by the Tea Board.

HEAVY MECHANICAL ENGINEERING INDUSTRIES—An Outlook

The Indian economy has over the years achieved notable progress in the heavy mechanical engineering industries such as structurals, cranes, steel pipes and tubes, bright bars, wire ropes, transmission towers, welding electrodes, railway wagons, ship building and repairing etc.

The growth and diversification of the light, medium and heavy structurals have helped strengthen several infra-structural industries in the country. The industry covers a broad range of items including building structurals for steel and other plants, steel bridges, both for road and rail, penstock and hydraulic gates. Besides improving the indigenous resources for various types of structurals this industry has even entered the export market against world-wide competition by strictly adhering to importers' specifications, materials, delivery schedules and workmanship. Presently there are ninety units in the organised sector producing structurals of light, medium and heavy varieties with a total installed capacity of about Rs. 3,60,000 tonnes per annum, production during 1971 was about Rs. 100,000 tonnes.

The cranes industry (other than mobile) (crawler/truck mounted) has gradually progressed over the plan periods in the country. At present there are more than two dozen units in the organised sector having an installed capacity of 34,735 tonnes per annum. The production of cranes during 1970 was about 6900 tonnes, and is expected to go up further in the near future in view of the requirements of Bokaro Steel Plant and other public sector projects that are coming up. In India, crane fabrication was so far for light and medium duty cranes. In recent years, however, production of heavier duty cranes including special cranes for steel mill duty, tower cranes, wharf cranes etc. has also been taken up, indigenously.

In the steel pipes and tubes industry, India is not only self-sufficient but has adequate capacity to spare for export. The installed capacity for production of black and galvanised steel pipes and tubes, ERW tubes and seamless steel tubes stood at the end of 1971 at 601,460 tonnes, 53,400 tonnes and 39,600 tonnes respectively. Production of these items during 1971 was estimated at about 218,350 tonnes, 31,920 tonnes and 34,300 tonnes respectively. The industry faced a setback in production during 1971 in view of sudden shortage of steel skelp/strips. However, the production of seamless steel tubes has shown an increasing trend in 1971.

With an installed capacity of 64,500 tonnes per annum the production of bright bars improved in 1971 as compared to this year. In view of the setting up of capacity for production of high sulphur free cutting steel bright bars, the industry is securing parts of its requirements from indigenous sources, in respect of raw material requirement for high sulphur free cutting bright bars.

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There is perhaps no category of wire ropes that is not being produced in India now. Recently, even it includes the locked coil wire ropes also. Indigenous wire ropes are now being used in the mines upto a depth of 350 metres. Installed capacity for wire ropes stood at 36,240 tonnes at the end of 1971. In that year, the output was estimated at nearly 19,980 tonnes valued at Rs. 80 million. About 65 per cent of the requirements of raw materials in the wire rope industry is being met from indigenous sources. While the balance is being allowed to be imported.

Transmission towers constitute a typical example of how the Indian economy has made notable progress in short time. With an installed capacity for 93,100 tonnes per annum the production of transmission towers was of the order of 62,025 tonnes valued at Rs. 93 million during 1971 as compared to 47,545 tonnes during 1970. The transmission tower industry in the country has also made a mark in the export field and is also in a position to export know-how. The welding electrodes industry is also picking up gradually with a changing concept of industrial designing and more riveted structures of welded structures. Most types of electrodes running into hundreds of varieties for different applications like welding of mild steel, high tensile steel, alloy steel, and stainless steel and for hard facing work etc. are manufactured indigenously. The units in the industry have developed necessary technical competence and do not require any foreign collaboration for ordinary mild steel electrodes. In fact, some of the units are in a position to provide technical assistance to other developing countries. The present installed capacity for the manufacture of the electrodes is 497 million running metres and there are 20 units engaged in the industry now. The production was estimated at 326 million running metres, during 1971. Compared to 1970, the output of special electrodes is stated to have gone up substantially in the following year. The electrode units are also diversifying their range of production to cover special requirements of hard facing and welding difficult metals.

Manufacture of railway wagons is fully established in India by now and all kinds of wagons, comparable to the standards achieved in advanced countries are now being produced. Sixteen units engaged in railway wagons manufacturing have a total licensed capacity of 40870 numbers in terms of four wheelers. The installed capacity at the end of 1971 was around 32,820 numbers. India made railway wagons have already been exported to quite a few foreign markets including Czechoslovakia and Poland. Four units presently manufacture lifts of all types with a total capacity of 910 numbers. Lifts up to 500 ft. per minute capacity are presently manufactured which can carry upto 25 passengers. Lifts up to 700 ft. per minute capacity are also expected to be produced shortly. During 1971 lift production was estimated to have gone up to 626 numbers against 474 numbers produced during 1970. The Boats and Craft Building/Ship Repairing Industry in India covers boats and crafts like tugs, barges, fishing trawlers, dredgers etc. Ship repair is also an important item of work covered by this industry. At present a dozen yards in the organized sector produce these boats and crafts with an annual installed capacity of 15,000 tonnes. This includes also their ship repair activity. Production during 1971 was estimated at Rs. 100 million. Maximum indigenisation of components for the industry is being effected with more and more of components being made available in the country. These components required special finish and inspection of M/s. Lloyds, or M.M.D. to suit the rigorous duty required to be performed by these boats and crafts. ☐

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HEATING ELEMENTS TO SINGAPORE

The Indian industry has made a mark in the export trade of electric resistance heating elements. Far East and Middle East countries have already imported these elements in sizeable quantity.

M/s. Asian Electric Works, Bhandup, Bombay-78, one of the prominent exporters of mica heating elements recently exported against a single order of about Rs. 19,000 worth of Murphy Richard type of mica heating elements to Singapore. The firm also received orders from other countries such as Australia, Sudan and Hong Kong.

The use of modern processes in the manufacture of their products accounts for the ever-lasting durability besides an attractive finish. They are now engaged in strengthening existing markets and entering into new markets for their products.

EXPORT OF ESSENTIAL OILS AND PERFUMES

India's export trade in essential oils and perfume materials including toilet, polishing and cleansing preparations has been on the rise. In the first three quarters of 1971-72 (April–December), the exports were Rs. 66.26 million, compared to Rs. 55.0 million in the same period of 1970-71. In the full year of 1970-71, the export value was Rs. 71.27 million.

While export of essential oils, perfumed and other materials are as much as 50 per cent of the total export earnings of this group, a wide variety of perfumery and cosmetics, dentifrices and other toilet preparations such as soaps, cleansing and oil preparations have been prominent in the list of these exports. Synthetic detergents also contribute a sizeable share in these exports.

M/s. Tata Oil Mills Co. Limited, Bombay succeeded in exporting as much as Rs. 30 million during

1971-72 recording a marked rise of about 48 per cent over their export performance in the year before. Among their exports, toilet/washing soaps and synthetic detergents including toilet powder (in the brand name of 'Magic'), toilet cake (brand name 'Bonus') were the prominent products of their export trade. The firm also supplied overseas a substantial amount of shrimps totalling Rs. 11.6 million in 1970-71 recording an increase of 69 per cent over the preceding year.

The Bombay firm is engaged in research and development work in evolving processes for higher utilisation of inedible and minor oils. They have also made progress in the development of indigenous engineering know-how. In fact, the company has produced 54 new indigenous machines of special and intricate design in the last three years which were hitherto imported.

The firm has to its credit a joint industrial venture in Malaysia.

EXPORT OF WATER-COOLER KNOW-HOW

Refrigeration industry in India has come of age and is in a position to leave surplus for export. Self-sufficiency in refrigeration equipment for cold storage, ice plants, fish-storage etc. has already been achieved. During 1970-71, about Rs. 6.13 million worth of these items were supplied overseas of which air conditioning and refrigeration plants fetched Rs. 4.46 million. Besides water coolers, air-conditioners and parts, refrigerators and parts, ice making machinery and other parts were also exported.

In 1970-71, the output of domestie refrigerators in India was at 87,000 units as against 67,000 during 1969-70. At present there are six manufacturing units engaged in the production of domestic refrigerators with an installed capacity of 1.08 million numbers.

M/s. Blue Star Limited, Bombay have recently concluded a contract with M/s. Yusuf A. Alghanim & Sons, Kuwait for manufacture of water coolers in Kuwait. The Indian firm is to provide technical know-how to the Kuwait firm.

The firm has established itself as a leading exporter to about 23 countries. The firm's products are in demand in the Middle East, Africa, South East Asia and Australia.

The firm has been presented an award by the Engineering Export Promotion Council for the second successive year, for its outstanding export performance during 1970-71.

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BAILADILA'S EXPORT PROGRESS

The Bailadila Iron Ore Project of the National Mineral Development Corporation which has the largest organised mine in Asia, is the single largest foreign exchange earning unit of its kind in India. Against exports worth Rs. 235.8 million in 1970-71, their exports in 1971-72 were Rs. 266.3 million—an increase of 13 per cent, and represented 24 per cent by value of all iron ore exports from India during the year.

Since its inception, the Bailadila project has to its credit an export earning record of over Rs. 100 million.

The Project's production in 1970-71 was of the order of 3.3 million tonnes which rose by 15 per cent to a record of 3.8 million tonnes in the following year. The project's exports in terms of quantity were substantially higher at a little over 3.7 million tonnes as compared to 3.29 million tonnes recorded in 1970-71.

India's total exports of iron ore stood at Rs. 1154.4 million in 1970-71 as against Rs. 1004.5 million in 1969-70 and Rs. 896 million in 1968-69. Quantumwise, the export trade was 20.8 million tonnes, 17.69 million tonnes and 15.90 million tonnes respectively. In 1970-71, the share of Japan in India's total exports of iron ore was of the order of 16.89 million tonnes at Rs. 902.6 million while that of East Europe was 3.04 million tonnes at Rs. 188.6 million and that of West Europe was 0.81 million tonnes at Rs. 61.1 million.

FUEL INJECTION EQUIPMENT AND EXPORT

Besides saving foreign exchange by import substitution, M/s. MICO, Bangalore have improved their export trade of single cylinder fuel injection equipment from Rs. 8 million in 1970 to Rs. 12.2 million in 1971. The export improvement was despite the stagnation in demand for this equipment in the economies of many parts of the world. The decreasing demand notwithstanding, the company is hopeful of maintaining exports, in 1972 also.

WOOLLEN FABRICS ACTIVE IN EXPORT TRADE

The woollen industry in India has over the years made good headway in the export market in 1970-71. The export value of wool and woollens rose to a record high of nearly Rs. 300 million, at about Rs. 67 million higher compared to the preceding year. The sectors that were mainly responsible for the increase were wool blended fabrics together with readymade garments made therefrom and wool blended hosiery.

During 1971, M/s. Raymond Woollen Mills, Bombay succeeded in exporting 110,000 pairs of wollen trousers as against 72,000 pairs in 1970. The export realisation per trouser is more than double the average net realisation of corresponding fabric exports.

The firm received an award for the best fabric of the year from M/s. Cafi, makers of teryne fibre.

MANGANESE ORE EXPORTS

India's export trade in manganese ore and concentrates was of the order of 1.64 million tonnes at a value of Rs. 139.78 million (1970-71). In the first three quarters of 1971-72 it was 0.86 tonnes at Rs. 83.03 million.

M/s. Sandur Manganese and Iron Ores Ltd., Yashwantnagar, Sandur, Bellary District, Mysore succeeded in supplying abroad about 240,000 tonnes of the ore in 1971. The company's production of the ore in that year was 261,000 tonnes as compared to their output of 234,000 tonnes in 1970 and 205,000 tonnes in 1969. Their output is expected to be higher and to exceed 300,000 tonnes during 1973. The firm is well established in Japanese as well as in European markets.

Apart from maximising manganese ore production and export, the company is examining the possibility of large - scale mining of iron ore. To this end, they have approached the Indian Bureau of Mines to prepare feasibility report for the production and export of 1 to 2 million tonnes of iron ore per annum from the company's own mining areas.

The firm's production of pig iron in 1972 is expected to reach 36,000 tonnes as against 33,990 tonnes in 1970. This output would amount to 100 per cent utilisation of their licensed capacity.

They have plans for further diversification of industrial expansion. They have received a letter of intent from Government for the production of 24,000 tonnes of ferro silicon per annum.

EXPORT TRADE IN KUTH ROOT

India is an important exporter of Kuth Root which is used as an accessory to betel leaf that is considered as a gourmet's speciality. Kuth Root also has a variety of medicinal uses.

Though not much in quantity and value, Kuth Root supplies from India are very eagerly sought by several overseas markets. In 1970-71 the quantum of these exports was 196,230 kg. and the foreign exchange earned therefrom was of the order of Rs. 0.95 million. Among the countries that imported Kuth Root were France, Hong Kong, Singapore, Japan, Thailand, Ceylon and South Yemen People's Republic. France and Japan together absorbed as much as one third of the total exports of the item in that year. In fact, in the first three quarters of the following year, namely, 1971-72 (April-December), the share of supplies to France and Japan in the total export trade of the item was nearly 50 per cent.

The Himachal Pradesh State Small Industries' Export Corporation Limited, Simla constitute an important exporter of Kuth Root. Notwithstanding fall in the production of this commodity in the state of Himachal Pradesh, the Corporation succeeded in exporting as much as 155 tonnes during 1970-71. In fact, the Corporation's export trade for this item was as much as 356 tonnes in the preceding year.

EXPORT PERFORMANCE AND POTENTIAL

EXPORT TRADE IN 1972-73

India's exports witnessed a continued rise during the first three years of the Fourth Five Year Plan. During the first two years i. e. 1969-70 and 1970-71, exports amounted to Rs. 14,130 million and Rs. 15,350 million showing an increase of 4.1 per cent and 8.6 per cent respectively against the annual growth of 7 per cent stipulated in the Fourth Plan. Export target for 1972-73 in accordance with the preliminary exercise conducted by the Ministry of Foreign Trade was placed at Rs. 17,800 million. In the light of developments at home and abroad, the export targets are under re-examination.

In an effort to accelerate the growth rate of exports several measures have been taken in the past. The Export Policy Resolution was laid before the Parliament in July 1970, outlining the broad features of the Government's trade policy. Among the various export promotion measures recently announced, were the supply of imported raw materials through replenishment licencing, removal of capacity constraints, stepping up of export production, abolition or reduction of export duties and appropriation of barter deals.

One of the major difficulties in the way of larger exports has been inadequate supply of raw materials. Under the import policy for the year 1972-73 the position regarding the supply of scarce raw materials is expected to improve considerably. The import policy envisages greater allocation of imported inputs in the case of selected priority industries, particularly those which have substantial export performance or which contribute to the country's savings of present imports. The proposed setting up of steel bank by M/s. Hindustan Steel Ltd. and the enlargement of the activities of the Industrial Raw Material Assistance Cell (IRMAC) set up by the State Trading Corporation (STC) should help organise bulk imports of steel and other raw materials for sale to manufacturers. Additional import of raw materials can also be allowed to industrial units in the prioirity sector if they earn net foreign exchange by exporting their products or their increased output results in a direct saving on present imports. Special emphasis was also laid on export houses in the small-scale sector. These policy measures are expected to help increase export production considerably.

Having regard to the target set up for the year 1972-73, the Ministry of Foreign Trade are now engaged in a detailed investigation of the market conditions likely to prevail abroad during the current year in relation to various export products of India, the problems in generating requisite export surpluses and marketing them abroad and taking preliminary steps to overcome the likely obstacles.

PERFORMANCE AND POTENTIAL OF ENGINEERING EXPORTS

Compared to the export earnings in 1970-71 at Rs. 1166 million, the engineering industry in India is estimated to have exported worth Rs. 1250 million during 1971-72, but these exports account for only about 4 per cent of the output of the engineering industry in India. Again, India's contribution is less than 1 per cent in the global engineering exports. Keeping the vast potential in view, the target for engineering products exports for 1972-73 has been placed at Rs. 2000 million by the Engineering Export Promotion Council, Calcutta.

Group-wise, auto and auto parts constitute prime sector contributing to the export trade in engineering goods. This sector is estimated to have earned Rs. 145 million in 1971-72—Rs. 75 million worth of complete automobiles and Rs. 70 million worth of auto parts and accessories, the export value of auto and auto parts in 1970-71 was Rs. 212.7 million. The export target for 1972-73 in this group is Rs. 250 million.

Industrial plant and machinery was the next important group of engineering export earnings, having netted Rs. 127.5 million foreign exchange in 1971-72 as against Rs. 106 million in the preceding year. Textile machinery including jute and knitting machines were estimated to have earned Rs. 60 million; paper and cement, chemical and sugar machinery Rs. 26 million; tea, oil and other food processing machinery Rs. 6.5 million and other industrial machinery including boilers, excavators etc. Rs. 35 million. The target for 1972-73 for this group has been placed at Rs. 250 million.

Electric wires and cables were exported to the tune of Rs. 105 million in 1971-72 resulting some fall compared to the export value at Rs. 113.2 million in the preceding year. The target for 1972-73 is Rs. 130 million.

The group of railway wagons, coaches and parts recorded a notable improvement from Rs. 21.1 million in 1970-71 to Rs. 70 million in the following year. The target for 1972-73 is Rs. 150 million. In respect of MS pipes, tubes and fittings also there was an improvement in the export trade from Rs. 71.8 million to Rs. 75 million. Likewise the export trade in bicycles and parts rose from Rs. 69.1 million to Rs. 85 million. The targets for these two groups respectively are Rs. 120 million and Rs. 100 million.

Steel structurals is another sector where export trade has been witnessing uptrend year after year. Compared to Rs. 61.7 million earned in 1970-71 the following year recorded Rs. 74 million worth of exports. Transmission line towers were at Rs. 42.5 million, while steel structurals Rs. 27.5 million and cranes, lifts and hoists etc. Rs. 4 million. The export target for steel structurals in 1972-73 has been placed at Rs. 105 million.

Hand tools, small and cutting tools earned Rs. 60 million in 1970-71 as against Rs. 43.8 million in the preceding year. In the following year the targetted export trade has been fixed at Rs. 75 million. Likewise there was an export improvement from Rs. 33.6 million to Rs. 50 million in the case of electric motors, transformers and switchgears etc. During 1972-73, their export target has been placed at Rs. 75 million.

In the group of electronics also encouraging progress was recorded. As against Rs. 47.9 million worth of electronics exports in 1970-71, the foreign exchange earned in the following year was Rs. 60 million. The export target has been placed at Rs. 76 million. Among the electronic items exported during 1971-72, radios, parts and electronic components are estimated to have earned Rs. 25 million, data processing machines Rs. 23.5 million, gramophone records Rs. 5 million, P.A. equipment Rs. 2.5 million and telephone and teleprinters Rs. 4 million.

Sanitary castings, industrial castings and forgings netted an export value of Rs. 50 million in 1971-72 as against Rs. 48 million in the preceding year. The export target for 1972-73 is Rs. 80 million.

Machine tools have also progressed from Rs. 28.4 million to Rs. 31 million, while the target for the year 1972-73 is placed at Rs. 50 million.

Among the steel products exported, builders' hardware, water fittings and sanitary fittings, steel furniture and razor blades have shown improvement in 1971-72 as compared to the previous year's record. The export target for 1972-73 for these steel products alongwith agricultural implements and stainless steel utensils has been placed at Rs. 46.5 million against an export estimate of Rs. 38 million in 1971-72.

In respect of other engineering products exports, the actual export performance in 1970-71, the estimated export value in 1971-72 and the target for export in 1972-73 are given as follows: diesel engines and parts Rs. 27.3 million, Rs. 31.0 million and Rs. 37.5 million; batteries Rs. 21.7 million, Rs. 25.0 million and Rs. 37.5 million; air-conditioners and refrigerators Rs. 6.1 million, Rs. 9.0 million and Rs. 13.0 million; electric fans and parts Rs. 14.4 million, Rs. 16.0 million and Rs. 22.5 million: railway track materials Rs. 15.5 million, Rs. 10.0 million and Rs. 25.0 million; wire ropes Rs. 17.5 million, Rs. 17.5 million and Rs, 25.0 million; aluminium and aluminium products Rs. 24.2 million, Rs. 14.0 million and Rs. 17.0 million; ferrous holloware Rs. 12.8 million, Rs. 11.5 million and Rs. 13.5 million; bright steel bars and shaftings Rs. 11.7 million, Rs. 9.0 million and Rs. 15.0 million; mechanical pumps Rs. 6.7 million. Rs. 7.5 million and Rs. 10.0 million; sewing machines Rs. 1.6 million, Rs. 4.5 million and 5.0 million; scientific and surgical instruments Rs. 5.3 million, Rs. 10.0 million and Rs. 12.5 million; oil lamps and stoves Rs. 5.8 million, Rs. 9.0 million and Rs. 10.0 million; abrasives and grinding wheels Rs. 2.1 million, Rs. 3.0 million and Rs. 5.0 million; ball and roller bearings Rs. 2.1 million, Rs. 2.0 million and Rs. 3.0 million; cutlery Rs. 2 million, Rs. 3.0 million and Rs. 5.0 million.

PROGRESS AT UNCTAD III INDIA'S ROLE

The Third Session of UNCTAD was held in Santiago (Chile) during April-May, 1972. In the policy statement made by the Indian Minister of Foreign Trade, multilateral comprehensive trade negotiations scheduled to be held in 1973 were referred to and it was emphasized that it should not to be allowed in any way to prevent the purposeful negotiations within the framework of UNCTAD on trading problems of the developing countries. He said that the Conference should solemnly re-affirm its support to the principal of standstill and of preferential reduction of tariff and non-tariff barriers in favour of developing countries.

During UNCTAD III, the Indian Delegation played an important role in preserving the solidarity of the 'Group of 77' and providing effective leadership to the Group. India was the chairman of the Committee on Shipping, Insurance and Tourism as also spokesman of 'Group of 77' on Commodities. India was also asked to provide the chairmanship of the working group of the 'Group of 77' on multilateral trade negotiations. In committees such as those relating to finance and least developed countries, the Indian Delegation played a leading role in resolving differences among the members of the 'Group of 77'.

In the Committee on Commodities, the Indian Delegation referred to, among others, to the problems of iron ore and manganese ore. It is expected that as a result of the efforts of the Delegation priority would be given to the consideration of the problems relating to mineral ores. Resolutions passed on marketing and distribution systems and also Synthetics and Substitutes were the result of the efforts of Indian Delegation. In the field of shipping the foremost task of the Indian Delegation was to forge a common position of the 'Group of 77' on the question ofcode of couduct of Liner Conference. The Delegation also played a role on the resolution relating to the land-locked countries, namely, Nepal, Bhutan and Afghanistan.

In the field of finance, where discussion tended to be controversial, the responsibility of exposition of the case of developing countries often fell on India. On the question of links between the Special Drawing Rights and Development Finance, Indian Delegation made an important speech. In the Committee on Manufactures and Semi-Manufactures also, the main and de facto spokesman of the developing countries was India.

It was on account of the Indian initiative, that a resolution was adopted unanimously recognising the role of cooperatives as efficient democratic organisations in the economic and social development of countries, especially of the developing countries and inviting appropriate multilateral development assistance agencies in the United Nations for promoting the exchange of experience as well as disseminating information on the techniques evolved by cooperative movements.

A number of decisions relating to different subjects was taken at the Conference. In the field of trade in commodities, resolutions were passed urging for provisions of more financial and technical assistance for research in primary commodities which are threatened with competition from synthetics and substitutes. Regarding trade in manufactures, it was decided to establish a Special Committee on Preferences as a permanent machinery. In the field of financing, the Conference agreed that the proposals for link between Special Drawing Rights and Development Finance deserved the most serious attention of the International Monetary Fund. Besides the resolutions, on international monetary situation, the Conference adopted other important resolutions relating to financial resources for development, inflow of public and private resources; volume, terms and conditions of the flow of public capital to developing countries and the role of multilateral financing institutions. In the field of shipping, a code of conduct for Liner Conference was provided by the developing countries. Resolutions were also adopted for maintaining stability in freight rates, development of merchants marines, development of ports and preparation of an agreement on cooperation in merchant shipping.

The Socialist countries of Eastern Europe gave full support to the cause of developing countries. They affirmed that the development of trade and economic relation with developing countries reflected their basic policy. Under the resolution in the field of trade relations among countries of different economic and social systems, socialist countries undertook to take up specific measures so that the products they import from developing countries would not re-export to other countries. Several other resolutions were adopted at UNCTAD III relating to the least developed countries, land-locked countries, on expansion of trade, transfer of technology etc.

CANALISATION OF COIR EXPORTS

To improve the competitive position of coir exports to the world markets and to place this labour intensive industry on a sound footing, the Indian Government have decided to canalise their exports through the State Trading Corporation of India. This has been disclosed by the Minister of Foreign Trade, Mr. L N. Mishra at the Parliamentary Consultative Committee which met recently. Plans for the further development of the industry are being finalised.

Exports of coir touched a record high of Rs. 148 5 million in 1971-72 as against Rs. 138.7 million during 1970-71. The quantum of exports improved to 52,410 tonnes as compared to 52,220 tonnes. There are proposals to strengthen the coir industry's cooperative sector. While the scheme for the development of the industry as prepared by the Government of Kerala, the major producer of coir, is under finalisation, various other measures have been taken for the development and preservation of this industry. These measures include negotiations with the European Economic Community for obtaining better access of India's production in European markets and implementation of a number of schemes for production, development, research, training and designs market development, export promotion, publicity abroad etc. The Coir Board is making efforts to improve the quality, diversify the products, promote exports and stabilise the industry in India.

A delegation under the leadership of the Deputy Minister of Foreign Trade, Mr. A. C. George, recently attended the IV session of the FAO group on Hard Fibre at Rome. Several institutions in Europe had taken up various research projects with regard to sisal and coir which were neglected. The Indian Delegation was successful to ensure that in the future work programme due attention would be given to the research problems relating to coir. At the instance of India, the Working Party constituted by the World Body recommended that at the international level the research programmes which were already in hand for studying dyeing and bleaching of sisal should also be extended to coir. Another important development was included in the global promotional campaign being drawn up by the FAO, in consultation with UNCTAD, GATT/ITC, An achievement of the Delegation was in persuading the consuming countries to accept the 5 per cent increase in the export price of Indian coir yarn and products.

EXPORT EARNINGS FROM JUTE GOODS UP

Exports of Indian jute manufactures advanced sharply to 682,000 tonnes in the ten months ending April 1972 of the 1971-72 season from 525,000 tonnes in the corresponding period of the previous season. Carpet backing and sacking varieties made a marked contribution to the export growth. While the offtake of hessian recorded nearly marginal improvement from 246,000 tonnes to 275,000 tonnes, shipments of carpet backing and sacking rose from 152,000 tonnes to 223,000 tonnes and from 81,500 tonnes to 128,000 tonnes respectively. Exports of other jute categories increased from 45,100 tonnes to 55,200 tonnes.

Direction-wise the U.S. market's imports of hessian rose from 55,800 tonnes to 81,000 tonnes followed by Canada from 20,100 tonnes to 23,700 tonnes, the U.K. from 4,100 tonnes to 12,300 tonnes, Argentina from 4,000 tonnes to 8,600 tonnes, rest of West Europe from 6,500 tonnes to 10,900 tonnes and rest of America from 4,000 tonnes to 6,800 tonnes. The Soviet Union had, however, curtailed its offtake to 62,700 tonnes from 67,300 tonnes while the rest of East Europe to 17,100 tonnes from 23,200 tonnes, Africa to 26,500 tonnes from 29,600 tonnes and Australia to 12,300 tonnes from 16,600 tonnes, it is learnt.

INDO-BELGIAN TRADE TRENDS

The Belgian-Luxembourg Union increased its import trade from India to a level of 1697 BF million or by about 5 per cent in 1971, compared with the previous year. Belgian exports to India have, however, witnessed a fall of nearly 17 per cent compared with the previous year. The major items of India's export were: worked diamonds, iron ore, petroleum oil, jute fabrics and sacks, crushed bones, animal feed stuffs, goat skins, tobacco, manganese ore, woollen carpets, cotton yarn, tea, coffee, coir mats, copper artware, spices and cotton grey.

Compared to 1970, the 1971 export trade to Belgium from India registered losses in categories like worked diamonds, unmanufactured tobacco, jute sacks, mica, coir mats and mattings and cotton yarn. These setbacks in the traditional products were more than compensated by increased exports of crushed bones manganese ore, coir yarn, goatskins, coffee, woollen carpets, copper artware, animal feedstuffs etc. A typical non-traditional item, namely, petroleum oil appeared in the export list to Belgium in the first half of 1971.

Interestingly, the list of exports from India to Belgium includes products such as machine tools, hand tools, cinematographic material, bicycle chains, sports goods, ivoryware, parts of pumps and gas turbine engines, footwear, readymade clothing, foodstuffs and rubber goods.

With the European Economic Community adopting in June 1971 a number of decisions to reduce import tariff on products of developing countries under the Generalised System of Preferences which came into effect from July 1, last year, the Belgian market now offers better scope for India's export growth to that market. The scheme includes quite a few items of export interest to India both in agro-based and semi-manufactured/manufactured varieties. Yet several goods continue to attract import obstacles in the Belgian market among which the products of export interest to India range from fish to fresh fruits, coffee, food products, cotton textile fabrics, jute yarn cloth and sacks, diamonds, and synthetic precious/semi-precious stones and so on. All these products are subject to license by the importing countries other than Grand Duche of Luxembourg. Further the common customs duty of the EEC which is also followed in the Belgian market is leviable on a wide range of products of export interest to India and include pepper, shellac, tea, coffee etc.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

PROGRESS IN AGRO-BASED INDUSTRIES

Increasing facilities for irrigation, introduction of high-yielding varieties and the need to maximise agricultural production have improved the demand for speedy development of agro-industries in India. The average Indian farmer is not more tied to tradition and is getting rapidly initiated to improved time-saving and efficient methods of cultivation involving use of farm machinery. Though of recent origin, the agricultural tractor industry in India has made steady headway. From a production of 7,610 numbers in 1966, the put-through was as much as 19,931 numbers in 1970. The indigenous content in tractor manufacture has been improved year after year and now it ranges from 80 to 90 per cent. There are six units presently engaged in the manufacture of tractors with a total licensed capacity of 60,000 numbers per annum. Apart from the regular production, some of the existing manufacturers have assembled tractors imported through State Trading Corporation in BKD form. The production on this account comes to 61000 numbers. In 1971, in which year total production of tractors thus rose to 22,508 numbers, five more units were licensed during 1971 for a total capacity of 42,000 numbers per annum. Some of these units are likely to go into production during 1972-73. All possible assistance is being extended to the existing tractors manufacturers to increase their production. Some of them also manufacture the matching implements viz. cultivators, harrow, ploughs, seed drill etc. which are being supplied along with the tractors produced by them. Additionally, letters of intent were issued to some parties for the manufacture of agricultural tractors for a total capacity of 141,800 numbers per annum.

Power tillers which are two wheeled walking type tractors in the 5 - 12 HP range, are also witnessing rise in production. There has been only one unit, namely, M/s. Krishi Engines Private Ltd., Hyderabad in regular production of power tillers. Their production during 1971 was 146 numbers. The second unit, namely, M/s. V.S.T. Tillers & Tractors, Bangalore are well on the way to come into production with a rate of over 300 numbers per annum. Besides, a third unit, namely, M/s. J. K Satoh Agricultural Machines Ltd., Kanpur are likely to go into production soon. The total licensed capacity of all the three units come to 14,000 numbers per annum. The import content in the case of the Hyderabad firm is negligible while in respect of the Bangalore firm it is about 30 per cent. During 1972 this unit is expected to reach much lower import content.

One unit, M/s. Vicon Ltd., Bangalore are licensed for the manufacture of tractor drawn combine harvesters. They are also licensed for the manufacture of power harrows, fertilizer distributors and seed control etc. The unit produced 265 numbers of tractor combine harvesters during 1971.

Six units licensed for the manufacture of agricultural dises for a total capacity of 560,000 numbers per annum. Of these, three units in regular production produced 114,814 numbers in 1971 as against 79,700 numbers in 1970; the remaining three units are expected to go into regular production from 1972. Forty units are engaged in the production of power driven pumps with an installed capacity of 356,091 numbers. About 70 per cent of the production is for agricultural purposes. There are four firms who are also engaged in the manufacture of specialised pumps required for petrochemical, fertilizer industries. One of the units has also taken up the production of sophisticated type of pumps for nuclear application. The production achieved by the existing units for 1971 was 243,666 numbers. Transformer oil handling pump was produced in India for the first time during 1971 by M/s. Best & Co., Madras. About 700 manufacturers of diesel engines in the organised, cooperative and small-scale sectors manufacture a variety of diesel engines from 3 HP to 380 HP. Production of these engines in the organised sector stood at 141,845 numbers valued at Rs. 455 million in 1969. There has been a notable increase in the export field of diesel engines. Engines and parts worth nearly Rs. 27 million were exported during 1970-71. The country is almost self-sufficient in regard to its needs of engines ranging up to 800 BHP and can supply engines for a variety of applications—agricultural, industrial and marine. The installed capacity for diesel engines in the organised sector was around 184,720 numbers per annum at the end of 1971. There are three units with a total installed capacity of 1,440 numbers per annum. In the field of heavy duty diesel engines, production in 1971 was estimated at 887 numbers valued at Rs. 62 million. M/s. Garden Reach Workshop, Calcutta have established a factory for the manufacture of diesel engines from 280 HP to 18,000 HP of the kind used as main propulsion unit and auxilaries in the ocean-going vessels. The other units, M/s. Kirloskar Oil Engines Ltd. and M/s. Kirloskar Cummins are engaged in the production of engines most for industrial applications. Both these units have achieved indigenous content of 70 to 90 per cent.

AIR-CONDITIONING AND REFRIGERATION INDUSTRY

The development of the air-conditioning and refrigeration industry in India has been rapid. New types and various ranges of equipment are being manufactured to make the country self-sufficient.

In the industrial air-conditioning and refrigeration equipment much progress has been made in the manufacture of centrifugal packaged chillers for the first time in the country during 1971. The capacity of a single machine is approximately 515 tonnes of air-conditioning. This will cater to the need of large industrial sector, multi-storey buildings and hotels.

In the manufacture of sealed compressors, progress is achieved in the manufacture of various ranges and for end-uses such as freezers, room air-conditioners of 2 tonnes and 2½ tonnes capacity, water coolers, commercial refrigerators, etc. India is self-sufficient in refrigeration equipment for cold storages, ice plants, fish storages etc. The production of refrigeration equipment which was of the order of Rs.20.5 million in 1965 went up to Rs. 112 million in 1971.

The capacity established for domestic refrigerators was as much as 108,300 numbers per annum. The industry is well established and the quality of the production is comparable to products manufactured abroad. The production of domestic refrigerators and room air-conditioners during 1971 was estimated at 87,000 numbers and 21,600 numbers respectively compared to the production of 31,400 numbers and 11,900 numbers respectively during 1965.

The total licensed capacity of dry battery industry is 905 million numbers and installed capacity at the end of 1971 was 529 million numbers. Additionally, letters of intent for a total capacity of 470 million numbers were issued. Dry battery cell production has been increasing rapidly—from 300 million numbers in 1965 to 570 million numbers in 1971. With the implementation of all expansion schemes, the country's demand is expected to be fully met this item.

Carbon rods which go into manufacture of D/B Cells are also produced in India. Plans for production expansion in this line are also underway.

Various types of storage batteries are now produced in India ranging from motor cycle batteries and automotive batteries to heavy duty battery. Production in the industry has been steadily growing, from 745,000 numbers in 1965 to 1.15 million numbers in 1971.

Diversified type of equipment in the field of air-control technology is being manufactured by various firms. Though the technology is changing fast in this industry, the indigenous manufacturers have been able to compete and have successfully adopted the improved technology and methods of production. Even in the manufacture of specialised fans and blowers and industrial cooling towers, the country is becoming self-sufficient.

HIGH POWER MEDIUM WAVE TRANSMITTER AT GORAKHPUR

A 100 KW medium wave transmitter of All India Radio costing about Rs. 4.2 million is ready to be commissioned at Gorakhpur shortly.

The transmitter is located in an area of about 20 acres on the Gorakhpur-Maharajganj Road, and has a 115 metre high tower as its antenna.

With the commissioning of this transmitter, which will operate on a frequency of 910 KHz and a wave length of 329.7 metres, an area of 80 per cent and a population of 92 per cent, in the eastern districts of Uttar Pradesh, would be covered. At present, only 74 per cent of the area and 82 per cent of its population is covered. During late evenings, adjacent parts of Nepal are also expected to be served by this transmitter.

Gorakhpur will also have a multi-studio set up by next year for production of various programmes. Presently under construction at an estimated cost of Rs. 3.16 million, these studio facilities would provide an adequate forum for utilisation of the local cultural talent.

FOREIGN EXCHANGE SAVED IN ELECTRONICS

In the value of complete equipment at Rs. 323 million, an amount of Rs. 267.5 million has been saved in foreign exchange by M/s. Bharat Electronics Limited during 1971-72. Of the value of equipment manufactured by the company 68 per cent is added value and the balance 32 per cent is bought out material plant, out of which 7 per cent is from indigenous sources and the balance of 25 per cent is imported.

Against a targetted production of Rs. 318.8 million, the firm achieved a production output level of Rs. 328.2 million in the year as against Rs. 294 million in the previous year.

Several new items of equipment in the HF and VHF range were introduced by the company into production stream during the year. Besides console tape recorders of the company's design and medium wave broadcast transmitters of 1 kw and 10 kw were manufactured with high indigenous content and supplied to All India Radio. A 100 kw. broadcast transmitter was also manufactured and is under test.

On the component side new items were introduced into production line, the important among them being hybrid micro circuits, vacuum capacitors, barrier layer type of ceramic capacitors, ceramic and vaportron tubes.

The company has developed numerical display systems for machine tools, in which M/s. Hindustan Machine Tools is interested for using them with the machines marketed by it.

The work to set up a second unit of BEL at Ghaziabad (Uttar Pradesh), involving a capital outlay of Rs. 110 million is progressing. Necessary plant and machinery for the unit have already been ordered. Engineering tool design and tool manufacture for launching production to be produced in the new factory have been started. Production in the factory is expected to begin by the end of 1973.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

MANUFACTURE OF THIOGLYCOLLIC ACID

A process for the manufacture of Thioglycollic Acid has been developed at National Chemical Laboratory, Poona.

Thioglycollic acid is used in cosmetics in hair fixative. It is also used as an essential catalyst for Bisphenol A preparation.

The process developed for the production of thioglycollic acid is from the indigenously available raw materials. The process essentially consists of preparation of sodium salt of monochloroacetic acid and its reaction with sodium thiosulphate and hydrolysis of the intermediate product. The resultant mixture is treated with zinc dust and extracted with suitable solvent. Thioglycollic acid is obtained on distillation of the mixture.

The essential items of plant and machinery are glass lined/S.S. vessel steam jacket and vacuum distillation unit. All of these can be fabricated in the country. All the raw materials required for the manufacture of this thioglycollic acid are available within the country.

YEAST FROM MOLASSES

A process for the production of Yeast from Molasses has been developed at Regional Research Laboratory, Jorhat.

Molasses, obtained as a by-product in sugar industry contain about 50 per cent of the fermentable sugar which can form one of the best sources of carbon for the growth of food for active dry baker's yeast. At present molasses are used for the manufacture of alcohol but not all the molasses available are being put to the said use. Thus sugar present in molasses can be utilized for the production of yeast. It is estimated that by this process 100 grams of yeast is produced per 200 grams of sugar consumed.

Dry baker's yeast is being consumed to a great extent in baking industries of the country. With the coming up of more and more of bakeries and other products based on fermentation the demand of yeast will go up. At present yeast is being manufactured by a few firms, but their production being small, the bulk of the requirement has to be imported involving a great drain on the foreign exchange resources of the country.

With a view to making India independent of the import of this vital material and also utilising the molasses, investigations were undertaken at Regional Research Laboratory, Jorhat and process for the production of active dry baker yeast has been developed.

The process consists of growth of yeast strain having biochemical stability, under aerobic conditions in mineral salt medium containing molasses as the sole carbon source, Yeast cells grown to a concentration of 10 grams/litre are separated, washed and processed under controlled conditions to give active dry baker's yeast. The product which is cream coloured is able to ferment dough upon rehydration.

Molasses, ammonium sulphate, corn steep liquor, phosphates, are the main raw materials required for the manufacture of yeast, all of which are indigenously available.

Molasses storage tank, mixer (dissolution tank), sterilizer, plate type heat exchanger, air sterilizer, refrigeration units, boiler, drum-dryer evaporator, pumps and boiler etc., are the major items of plant and equipment; all of which can be fabricated in the country.

ELECTRO-ORGANIC COATING OVER MILD STEEL

The Central Electrochemical Research Institute, Karaikudi has developed a know-how for the preparation of electro-organic coatings over mild steel and aluminium articles from water soluble resins prepared in the laboratory.

Organic coatings are generally applied to metals from solutions of organic materials dissolved in organic solvents. Organic solvents serve no purpose other than being a convenient medium for the transfer of organic materials on the metals. However, there is an element of risk of fire in the large-scale use of solvents.

Organic coatings have been extensively used to obtain hard coatings for the protection of metals against corrosion and for electrical insulations.

Chemicals like water soluble resin, amino and titanium dioxide used as raw materials for the process are available within the country. The process is available with National Research Development Corporation of India.

PROCESS DEVELOPED FOR DEXTRAN

Dextran which is a collective name for a series of polyglucoses having a high dextro-rotation and has blood plasma volume extending properties has been developed by the Defence Research Laboratory (Materials), Kanpur. The process has been tried up to laboratory scale and 3 stages have been involved in the preparation of Dextran one after another. These are preparation of fermented liquor, preparation of Crude Dextran and Preparation of Clinical Dextran.

The concentrated dextran solution is diluted with pyrogen free water to make its concentration to 6 per cent and then sodium chloride is added to make it 0.9 per cent isotonic solution. The yield of clinical dextran obtained was 11-12 per cent on the basis of cane sugar taken.

The dextran prepared by Defence Research Laboratory (Materials), Kanpur confirms favourably to British Pharmacopoeia specifications. It was tested at Armed Forces Medical College, Poona for sterility, toxicity, pyrogenecity etc. in animals and had adequate blood plasma expanding capacity. Central Drug Laboratory, Calcutta, and Central Drug Research Institute, Lucknow have also given satisfactory test reports of the samples.

The main raw materials required for dextran process are sucrose (cane sugar), Pyrogen free water, dipotassium hydrogen phosphate, agar etc., hydrochloric acid A.R., Sodium Hydroxide A.R. and Alcohol Pure.

Plant and Machinery requirements for the process includes controlled temperature room, stainless steel vessels and stirrers, pyrogen free water plant, centrifuge, vacuum pump, bottle washing and sterlizing machine and bottle sealing machine, filteration unit including seitz filters and equipments for quality control purpose.

DIRECTION PATTERN OF INDIA'S EXPORT TRADE

(Rs. Million)

Region	1970-71	1971-72	1970-71
		(April — December)	
Africa	**1381.62**	**959.26**	**996.57**
A.R.E.	552.86	153.55	403.10
Sudan	382.70	371.92	264.42
Nigeria	86.20	83.98	61.70
Kenya	78.54	75.25	59.67
Tanzania	43.93	42.52	31.10
Uganda	29.67	27.76	21.50
Ethiopia	26.20	15.17	17.45
Libya	16.50	12.13	14.74
Morocco	18.65	6.47	9.24
North America	**2847.32**	**2401.94**	**1726.67**
Canada (including Newfound Land and coast of Labrador)	279.50	334.58	216.48
U.S.A.	2067.80	2067.35	1510.20
Latin America	**83.10**	**165.44**	**48.99**
Other American Countries	**20.30**	**25.45**	**15.02**
E.C.A.F.E. (Countries including China)	**4085.80**	**2937.53**	**3700.51**
Japan	2021.45	1341.46	1536.40
Ceylon	318.10	176.85	223.60
Australia	243.98	218.77	181.52
Nepal	241.86	194.20	195.25
Iran	266.38	151.57	195.52
Singapore	174.98	139.76	122.15
Hong Kong	171.38	121.14	130.78
Other Asian and Oceanian Countries and Antarctic and Arctic Regions	**717.90**	**480.00**	**521.32**
Kuwait	156.66	80.68	112.23
Saudi Arabia	145.10	76.80	109.38
Iraq	90.40	91.74	63.13
East European Countries	**3615.79**	**2588.94**	**2677.33**
U.S.S.R.	2098.48	1634.35	1578.10
Yugoslavia	391.84	196.19	312.92
Czechoslovakia	294.40	203.12	203.04
Poland	221.16	115.58	154.15
European Common Market Countries	**981.54**	**870.97**	**732.76**
Federal Republic of Germany	321.55	270.95	249.10
Belgium	203.20	164.56	148.45
France	179.42	166.00	130.10
European Free Trade Area Countries	**1887.53**	**1423.76**	**1508.66**
U.K.	1699.98	1281.00	1374.07
Switzerland	72.27	56.96	52.95
Sweden	59.33	38.80	39.88
Other European Countries	**122.96**	**106.70**	**92.54**
Spain	26.82	15.17	21.65
Ireland	64.32	51.62	47.80
Total of all Countries	**15243.90**	**11900.00**	**11397.40**

Source : Department of Commercial Intelligence and Statistics, Calcutta.

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PERFORMANCE REVIEW OF CEMENT INDUSTRY

From 3.28 million tonnes in 1950-51, the capacity of cement industry in India rose to 19.39 million tonnes by the end of 1971. Actual production increased from 2.7 million tonnes in 1951 to 14.83 million tonnes in 1971. In terms of value, the present turnover is worth about Rs. 1550 million.

In 1971 alone, five units have commissioned their expanded capacity of about 1.13 million tonnes per year. Two more units are expected to have added to their capacity to the extent of 0 36 million tonnes by the end of 1971-72. Thus the total installed capacity of cement would be around 19.75 million tonnes by the end of 1971-72.

The total exports of cement during 1970-71 was of the order of 168,448 tonnes valued at Rs. 20.2 million compared to Rs. 16.6 million during 1969-70. Nepal, Muscat, Ceylon and Saudi Arabia were the major markets of Indian cement. In the year 1971-72, cement exports are estimated to have touched the figure of Rs. 27 million.

In view of the ever increasing domestic demand, estimated to rise to 24 million tonnes per annum by 1973-74, steps are being taken for creation of additional capacity and a number of letters of intent have been issued and some more are being considered for a total additional capacity of nearly 9 million tonnes per annum.

Along with the production of ordinary portland cement the industry attempted a diversification of their activity by producing allied items i e. special cement, such as blast furnace slag cement, possolana cement, white cement, oilwell cement and rapid hardening cement. Their production in 1971 respectively was 1.42 million tonnes, 0.12 million tonnes, 61,365 tonnes, 4,906 tonnes and 7,528 tonnes.

The cement industry which till recent times depended on foreign equipment and technical know-how has gradually built up self-sufficiency. In fact, the industry has started supplying know-how to foreign countries. For instance, Kuwait sought Indian assistance for a turnkey cement project. The development of technical expertise has enabled the industry to export technology and plants of its own design to other countries.

In respect of asbestos cement products the country is not only self sufficient but is in a position to export about 50,000 tonnes to 100,000 tonnes per annum. In 1970-71, the value of export of asbestos cement products amounted to about Rs. 7.4 million. The principal products being produced include roofing sheets, building pipes, pressure pipes for conveyance of tap and irrigation water, corrosive liquids and fluids, sewerage pipes, household water tanks, safety tanks grain bins in villages etc. These materials can replace steel and/or galvanised sheets and, as such, are of considerable economic importance particularly in the context of shortages of galvanised iron sheets and steel sheets in the country.

The industry is so much advanced that import of technology is completely banned. Capacity has been generated in the country for the manufacture of complete plant and equipment for A.C. sheets, pipes, presssure pipes etc. and India is in a unique position to export finished products, complete plants and machinery to manufacture these and the technology to run the units. Manufacture of asbestos cement products in the country is based on most scientific method of process control and strict adherance to specifications.

Presently there are 9 units engaged in the industry with an installed capacity of 561,000 tonnes per annum against a licensed capacity of 636,600 tonnes at the end of 1971. Asbestos cement products as a whole registered a 7 per cent increase in production during 1971 over that of 1970 with A.C. sheets and accessories contributing mainly to this increase. The value of production during 1971 is expected to be of the order of Rs. 254.3 million compared to Rs. 226.6 million during 1970.

The overall production of various types of asbestos textiles, jointings, packings and mill boards is estimated to be around 4,400 tonnes during 1971. A unit in Bombay has commenced production of high pressure jointings in the beginning of 1971. This unit has a capacity of 360 tonnes per annum. Another unit with a capacity of 160 tonnes is expected to go into commercial production by the end of 1971-72. □

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INDIA EXPORTS ISOTOPES

The success in export diversification achieved by the Indian economy in recent years is reflective of the continuous product development and technological sophistication absorbed into the economy's production capability. In the long story of accomplishments the chapter relating to the export of radio isotopes, labelled components and other atomic energy products is one of the latest.

The Isotope Division of the Bhabha Atomic Research Centre (BARC), has to its credit the export trade of isotopes, equipment and services worth Rs. 506,000 in 1971-72. The export sales constituted about one-seventh of the total sale value of the Division which despatched a total of 23,445 consignments of isotopes including 15,141 consignments for medical use during the year.

A number of radio isotopes, labelled compounds and equipment were exported to various countries, including Argentina, Australia, Burma, Cambodia, Denmark, Ethiopia, France, Netherlands, Singapore, Thailand and Uruguay. Special mention may be made of the export of P^{32} labelled fertilisers to Ceylon, Columbia, Ghana, Hungary, Peru and Romania and two gamma chamber units to Ethiopia and Uruguay against orders received from the International Atomic Energy Agency. Radio pharmaceuticals such as Hg^{203} labelled neohydrin, radio-cobalt labelled vitamin B 12 and I^{131} labelled Rose Bengal have been supplied on regular basis to users in Argentina, Australia and France.

The Isotope Division of the BARC recently developed a solvent extraction generator for the preparation of technitium 99 m, a radio isotope of short half-life (6 hours) required for use in nuclear medicine. They have also developed a method for the production of P^{32} labelled nitrophosphates of varying water solubility useful in agricultural research. The P^{32} labelled fertilisers were supplied by BARC to several overseas users.

The Division made good progress in the designing, fabrication and setting up of Large Gamma Irradiators. A variable dose gamma irradiation facility known as panoramic batch irradiator (PANBIT) has been constructed at Trombay. Loaded with an initial charge of 10,000 curies of cobalt-60, this is being used for the evaluation of processing parameters and development of wood polymer and fibre polymer compositer,

A plant for irradiation sterilisation of medical products will go into operation by the end of 1973, and will be capable of treating 8500 cu. m. of medical products per year initially. It is designed for a maximum capacity of 29,000 cu. m. of materials. The products, proposed to be sterilised in the plant include cottonwool, catheters, disposable syringes, sutures and surgeons' gloves.

The Isotope Division is also engaged in studies on the fixation of long-lived fission products such as caesium-137, cerium-144 etc. from fuel reprocessing waste solutions. Studies for the upgrading of abundantly available cheap wood into improved wood varieties using radiation polymerisation technique are undertaken by them. Radioactive sources were used in several fields like gas leak detection, rayon plant parameter reading water-leakage from boiler plants in chemical factories, ground water movement etc. Earlier, the Division succeeded in exploring a variety of end-uses of isotopes, particularly in the fields of medicine, scientific research and agricultural crop improvement.

MACHINE TOOL KNOW-HOW TO U. K.

For the first time India has sold machine tool manufacture know-how to an advanced country. A ten-year agreement for the production of minichucker, a tool for machining ball bearings, has been entered into by M/s. Hindustan Machine Tools (HMT), Bangalore, with a U.K. firm M/s. Wickman, one of the leading machine tool manufacturers in the world. With this, India is placed on the map of the machine tool manufacturing world.

Under the agreement, the public sector undertaking in Bangalore will provide the design and blue-print of minichucker to the foreign firm which was licensed to produce the tool. In return the Indian firm will get a substantial royalty from the U.K. firm. The indigenously designed minichucker is catching up in the other European markets also.

M/s. HMT also finalised arrangements to enter the field of the highly sophisticated numerically controlled machine tools and for the establishment of a base for their company at Luxembourg. These plans together with the deal with the U.K. firm are expected to step up their export performance from the present Rs. 15 million per annum to Rs. 50 million in five years time.

M/s. HMT propose to indigenously develop the NC (numerically controlled) machine tools in collaboration with M/s. Bharat Electronics Ltd. and Central Machine Tools Institute, both in Bangalore in the public sector. The NC machine will enable different operations to be done by feeding a tape into it. This is the latest electronic gadget in the field of machine tools and is being increasingly used in the developed countries.

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The establishment of a base in Luxembourg will help a mini-HMT with necessary shops, designing, engineering etc. to cater to the needs of Europe. General purpose machines will be exported to this base from India while sophisticated accessories to suit the needs of individual purchasers will be attached to the general purpose machine tool base shop and sold to customers. The establishment of the base will help avoid payment of commission which ranges from 60 to 100 per cent to dealers thus bringing down the price of the machines to be sold. Also it would facilitate matching up of the sophisticated accessories to the general purpose machine without importing the accessories to India thus saving foreign exchange and time. Export of general purpose machine tools has almost reached a saturation point and there is no alternative for India but to match them with special equipment.

AUTOMOBILE PRODUCTS TO YUGOSLAVIA

A wide range of precision engineering items in the automobile group are being exported to Yugoslavia and its neighbouring countries. India's participation in the international Automobile Fair at Belgrade has proved helpful in expanding these exports.

Beginning with modest participation in 1964, M/s. Amalgamations Private Limited, 202, Mount Road, Madras-2, have since been regularly participating in the Fair, achieving important results year after year. Several leading manufacturers of automobile ancillaries in India have also chosen to route their exports through the firm.

During the last four years, exports of the Amalgamations group alone have crossed Rs. 10 million to East Europe. In addition, during the last three years the total business secured by them from that area for various associated companies exceeded Rs. 25 million. Currently the total value of firm orders pending on hand with the group would be nearly Rs. 14 million. Additional business for Rs. 24 million is under negotiation.

The range of precision engineering items that are being exported to Yugoslavia and the other East European markets either directly by the Madras firm or outside companies through the company's assistance includes pistons, rings and liners for various applications, forgings, storage batteries, thinwall engine bearings, timing chains, brakes and brake assemblies, inlet and instruments, electric horns, wiper arm blades and bulbs, leaf springs, electrical accessories for automobiles, nozzles, elements and delivery valves, needle roller bearings and bushes, finished crankshafts, filters and filter for elements for transport industry, tie rod ends, and steering linkages, dynamo armatures. tyre valves and accessories, nyloc self locking fasteners, wheels, springs and spring washers, air compressors for automobile and other applications, oil seals and hydraulic brake parts and water thermostants.

The Madras firm's success in exporting such a range of products has helped to establish that the Indian engineering industry is in a position to cater to the exacting demands of overseas buyers in terms of quality, price and delivery.

Trade between India and Yugoslavia has achieved a special significance now in view of the proposed change over in the payment position from January 1, 1973 from a bilateral Rupee Trade to convertible payment system.

EXPORT OF RADIO RECEIVERS AND TRANSISTOR SETS

The export value of Indian radio receivers, transistor sets and parts rose to Rs. 19.29 million in 1970-71 as against Rs. 12.43 million in 1969-70. This represents an increase of more than 55 per cent. The export earning from these items amounted to Rs. 17.37 million during the first three quarters (April-December) of 1971-72.

The entertainment electronic industry in India has particularly made notable progress over the years. From 300,000 radio receivers in 1961, production by large scale sector reached 1.77 million numbers in 1970 and 1.97 million numbers in 1971. With 14 units in the line the large-scale sector has a production capacity of 2.3 million radio sets per annum. The total licensed capacity till the end of 1971 was of the order of 3.0 million numbers. Besides these, a large number of small scale units in the country are engaged in the manufacture of radio receivers. Some of the manufacturing units have developed special types of radio receivers for export markets. The radio components sector has also progressed simultaneously. With the rising production of components the import content of a radio set has been reduced from Rs. 11.50 in 1966 to Re. 1.00 in 1970 and to Re. 0.75 in 1971. This too will be further reduced with the increasing availability of electronic components in the country.

One of the manufacturers in the line M/s. Weston Electronics Pvt. Ltd., New Delhi, who started production of radio and transistor sets as late as 1967 have received substantial export orders for these items from the West Asian and African countries, earning as much as Rs. 3 million through exports to these countries during the past 18 months. The export target for the next year has been fixed at Rs. 5 million by the firm.

The firm has lately diversified its range of products. Its first T. V. set was released recently in New Delhi. They are the third small-scale unit to make T. V. sets and the sixth in the country.

The Weston T. V. set has special features like a shutter and twin speakers without any additional cost. The company has a plan to make 12 inches T. V. sets at a fairly cheap price for lower middle class consumers.

The production of T. V. receivers in the country started in 1969 and stood at 1266 numbers during that year. It increased to 5130 numbers in 1970 and 7800 numbers in 1971. The installed capacity too rose from 10,000 numbers in 1970 to 20,000 numbers in 1971.

JET COMPONENTS FOR EXPORT

The Aviation industry in India has made considerable headway over the last few years with regard to exports, besides its achievements in the production field. Lately, the Rs. 100 million aero-engine factory, one of the six divisions under Hindustan Aeronautics Limited (HAL), Bangalore has earned foreign exchange equivalent to Rs. 5.27 million through exports of components to U.K. and France and overhauling of jet and turbine engines from Iraq, Kuwait and Nepal.

The HAL factory at Bangalore is now exporting Alouette body structures to Sud Aviation, France. The factory has also been supplying turbine blades to Rolls Royce Limited in U.K. It is now aiming to export all indigenously developed complete aero-engines.

Besides designing and developing the HJE-2500 jet engines for use in the jet trainer aircraft, the Aero-engine division has been evolving a four-cylinder piston engine suitable for light aircraft. This light aircraft engine has lately been cleared for commercial manufacturing.

HAL has also been successful in doubling the thrust of the dart engine used in HS-748 passenger aircraft manufactured in Kanpur. The factory is experimenting in further developing Orpheus 703 engines used in HF-24 to increase its thrust range with greater output.

Though the Engine Division has given up the idea of developing its own ancillary units on grounds of economic viability, it would extend financial and technical assistance to Indian ancillary units in the small sector to take up the manufacture of a limited quantity of ancillaries required by the engine division. As the aviation industry is facing shortage of aircraft designers, HAL has taken up the direct responsibility of training aircraft designers and top managerial personnel on an India basis. Under the present scheme 30 managerial trainees and 100 designer trainees were being recruited annually from among those having high academic qualifications.

The HAL is now aiming to have a team of about 300 young designers by the end of 1980 by which time they propose develop latest aircraft with high-powered engines.

COTTON SEED OIL CAKE TO CZECHOSLOVAKIA

Export earning through supplies of cotton seed oil cake and meal of different types improved to Rs. 51.47 million in 1970-71 from Rs. 47.29 million in 1969-70.

Lately a cotton seed oil crushing unit at Adilabad, a venture of Andhra Pradesh State Small Industrial

Development Corporation has exported cotton seed cake worth Rs. 0.25 million to Czechoslovakia.

During the year the cotton seed crushed by this unit was valued at Rs. 2.5 million.

OPTICAL LENSES AND BLANKS IN EXPORT STREAM

India is making rapid progress in the exports of optical glasses and blanks for spectacle lenses. The products are in keen demand in overseas markets, particularly in South East Asia. In 1970-71, the exports amounted to Rs. 82,100. In term of quantity the offtake was 978 kg.

Countrywise, the major importers have been Ceylon, U.S.A., Switzerland, Hong Kong, Zambia, Saudi Arabia and Bahrain.

M/s. Bharat Opthalmine Glass Limited, Durgapur (West Bengal) who are manufacturing opthalmine glass blanks and lenses for eye care, have now entered in the export market by exporting 100,000 of pieces to U.S.S.R. recently. This is the first time that wholly Indian made finished spectacle lenses have been exported.

EXPORT PERFORMANCE AND POTENTIAL

INDIA'S EXPORT TRADE

A REVIEW

The first 10 months of 1971-72 (April 71-January 72) witnessed improvement in india's export earnings at Rs. 12,914.49 million as against Rs. 12,831.65 million in the same period of the preceding year.

Several areas of the export trade registered progress in the period under review during 1971-72. In the category of food and live animals, fish and fish preparations showed a sizeable rise at Rs. 322.8 million against Rs. 255.9 million. The major rise was in respect of fresh and simply preserved fish. Again, fresh fruits and nuts including cashew kernels registered uptrend at Rs. 571.28 million as compared to Rs. 431.80 million. Sugar and honey rose from about Rs. 220 million to over Rs. 271 million. The offtake in tea was also up at Rs. 1338 million against Rs. 1313 million.

Unmanufactured tobacco and tobacco manufactures fetched Rs. 396.64 million which was an improvement by Rs. 121 million. Oil seeds, oil nuts and kernels constitute another sector where exports improved to Rs. 535.7 million from Rs. 454.6 million. Export of raw cotton was at a level of Rs. 158 million and this performance was Rs. 53 million more than in the corresponding period of 1970-71.

The export earnings of chemical elements and compounds were more or less maintained at over Rs. 61 million but the external sales of organic chemicals as also oxides and halogen salts have proved to be better. Medicinal and pharmaceutical production too improved at Rs. 75 million against Rs. 71.4 million. Export rise was recorded in respect of essential oils and perfumed materials including toilet, polishing and cleansing preparations.

There was a remarkable improvement in the export trade of leather and leather manufactures from Rs. 588.4 million to Rs. 727.5 million. Leather alone netted Rs. 138 million more foreign exchange at Rs. 722.39 million.

Almost all categories of textile yarn and fabrics particularly textile yarn and cotton floor coverings and jute manufactures recorded rise to Rs. 3443.6 million from Rs. 2930.4 million. The export trade in jute manufactures fetched Rs. 2126 as against Rs. 1558 million in the previous year. The offtake of cotton manufactures excluding yarn and thread was at Rs. 819 million as against Rs. 820 million.

Pearls and precious stones fetched Rs. 422.3 million from Rs. 346.8 million. While the overall group of iron and steel registered fall, the specific categories, namely, rails and rail track material and iron and steel castings improved in their export value. The major decline was, however, in respect of pig iron, sponge iron etc. as also iron and steel bars and sheets. Export of pipes and tubes was less at Rs. 87 million as compared to Rs. 88.7 million.

Mainly due to a fall in the offtake of aluminium, copper, non-ferrous metal industry contributed less in 1971-72 as against the previous year–Rs. 67 million against Rs. 101 million.

Among the metal manufactures, wire products and fencing grils, machine and handtools, metal containers for storage and transport, household equipment, automobiles were the areas where export trade brightened while the finished structurals and structures, nails, screws and rivets did not fare too well.

Power generating machinery (other than electric) is another area whose export trade expanded in the first ten months of 1971-72 at Rs. 48.82 million as against Rs. 44.4 million during the previous year. Metal working machinery and machines for specific categories also were more in demand in the overseas markets.

The group of electrical machinery, apparatus and appliances not only improved in value but also registered distinct diversification. Electrical power machinery and appliances fetched Rs. 41 85 million against Rs. 36.20 million; equipment for distribution of electricity Rs. 48.12 million against Rs. 32.44 million; telecommunication apparatus Rs. 26 million against Rs. 20.97 million; domestic electric equipment Rs. 14 milllon against Rs. 13 million and other electrical machinery and apparatus etc. Rs. 34.9 million against Rs. 31.3 million. The entire group of electrical machinery fetched Rs. 165.81 million against Rs. 131.42 million.

There was a trebling in the export earnings of railway vehicles to Rs. 63.50 million from Rs. 21.68 million. Improvement was noticed in the case of road vehicles while that of motor cycles showed decline.

A wide variety of other exports contributed largely to the overseas demand in 1971-72 as compared to the previous year, particularly in the case of clothing, footwear, scientific and optical, measuring and controlling instruments and apparatus, printed material, works of art, etc.

Directionwise first ten months of 1971-72 showed that exports of the North American region improved considerably from Rs. 1932 million to Rs. 2470 million. Of this the United States of America absorbed Rs. 2135.4 million as compared to Rs. 1701.63 million. Canada also imported from India goods worth Rs. 338 million as compared to Rs. 230 million. The Latin American region has lately doubled its intake to a level of Rs. 111.70 million from Rs. 62.8 million. Exports to Argentina, Chile, Peru and Peruguay were considerably higher.

To ECAFE group, there was an overall decline in India's export trade to Rs. 3200 million from Rs. 3446 million. Supplies to Australia, Malaysia, Nepal, New Zealand, Singapore and Vietnam Republic recorded upward trend.

The East European region imported from India goods worth Rs. 2885 million against Rs. 3041 million. Supplies to U.S.S.R. were maintained at a level of over Rs. 1786 million but the purchases by Poland, Rumania, German Democratic Republic and Yugoslavia were lower while those of Hungary and Bulgaria were considerably higher.

The European Common Market countries attracted an expansion of export trade from India at Rs. 968 million against Rs. 810 million. There was uniform improvement in the export sales to all the member countries of the ECM but the rise was substantial in respect of France, Federal Republic of Germany and Italy.

To the U K. market, however, India's supplies fell to Rs. 1389 million against Rs. 1503 million. Barring Denmark, the export trade was up in the case of other countries including Austria, Norway, Sweden and Switzerland.

The African region absorbed less at Rs. 1077.3 million as against Rs. 1175.5 million.

EXPORT PERFORMANCE OF PLASTIC PRODUCTS

Sizeable improvement in the export performance of plastic products has been registered during the year 1971-72 as compared to the preceding year. The export value rose to the level of Rs. 48.54 million against Rs. 41.42 million.

Exports of PVC leather cloth have particularly improved by about Rs. 3.8 million at Rs. 11.41 million.

The trade in this category would have been, in fact, higher but for the shortage of indigenous PVC raw material which developed in the fourth quarter of 1971. The difficulty was immediately spotted and the raw material has been canalised for import under the current Import Policy (1972-73).

Spectacle frames constituted another important area of export expansion. These exports fetched Rs. 4.2 million as compared to Rs. 3.4 million. This is indeed a promising commodity which has exceeded the target, set its export at Rs. 4 million for the year 1971-72.

Another field of export potential was plastic bangles whose exports in 1971-72 have more than doubled to the level of Rs. 4.7 million as compared to Rs. 1.98 million in the preceding year. Here again, the target set at only Rs. 2 million was by far exceeded. The virtual boom in the export market of bangles was due to the recovery of the Nigerian market as also substantial supplies to Indonesia, Singapore and Australia. To avoid competition among Indian exporters it is likely that the State Trading Corporation may turn out to be a major exporter of bangles to Australia.

The PVC fabricated goods earned Rs. 1.75 million as against Rs. 1.28 million. The major item of export under this category is ladies' hand-bags.

An increase of about Rs. 0.7 million was recorded in the overseas supplies of plastic immitation jewellery which fetched Rs. 2.41 million in 1971-72. The Plastics and Linoleums Export Promotion Council, Bombay, are exploring possibilities of securing bulk orders from U S.A. and Canada which are the principal markets for the jewellery.

Mainly against global tenders, the Indian exporters secured important export business in respect of plastic pipes and specials worth Rs. 0.45 million in 1971-72 against a meagre Rs. 0.11 million in the preceding year. With ever improving production in the line and the rise in overseas demand, this category of plastic products is bound to secure more export trade in the years to come.

For the first time in India's export trade, HDPE sacks and fabrics have been exported to the tune of nearly Rs. 1 million in 1971-72. With about 125 small units in various stages of production, this new export item has a definite export capacity of 100 million bags per year according to the Plastics and Linoleums Export Promotion Council. Individual manufacturing capacities for this item range from 50,000 bags to 125,000 bags per month. A standard bag is 22″×32″ of 50 kg. capacity.

Plastic extruded goods were exported to a level of Rs. 1.4 million in 1971-72 against Rs. 1.16 million in the previous year. The export trade in moulded goods was more or less maintained at about Rs. 8 million in both the years. Likewise, overseas supplies of plastic electric accessories too were maintained at about Rs. 3 million.

There was, however, a shortfall in the offtake of laminates and plastic fountain pens. In 1969-70, laminates exports totalled Rs. 3 million out of which Czechoslovakia imported Rs. 2.1 million, the A.R.E. Rs. 0.25 million and Sudan Rs. 0.22 million. But, the Czech market did not import the product during 1970-71 and 1971-72 and hence the decline in its export performance.

In respect of linoleums too there was a substantial rise in export sales during 1971-72 at Rs. 7.15 million as compared to Rs. 4.37 million. These exports have exceeded the target set at Rs. 6 million for the year 1971-72. The linoleum industry in India expects to perform still better in the years to come. There was, however, a shortfall in the export trade of polylined jute goods and plastic raw materials like H. D. polythylene. It was the shortage of L. D. polythylene which was responsible for the decline in the export trade of polylined jute goods.

JUTE GOODS IN EXPORT TRADE

During the period of ten months from April 1971–January 1972, the exports of jute goods from India were of the order of Rs. 2126.02 million.

The export composition during these 10 months was : Carpet backing cloth 187,326 tonnes at Rs. 834.22 million, sacking cloth 7284 tonnes at Rs. 7.89

million, hessian cloth 182,781 tonnes at Rs. 720.24 million, narrow fabrics 1963 tonnes at Rs. 9.14 million, jute bagging for raw cotton 25,301 tonnes at Rs. 51.95 million, jute corn sacks 2918 tonnes at Rs. 6.99 million, jute hessian bags 57,416 tonnes at Rs. 228.24 million, jute sacking bags 76,400 tonnes at Rs. 212.07 million, jute wool sacks 6309 tonnes at Rs. 16.32 million, jute tarapaulins and trapaulin tents 5798 tonnes at Rs. 24.64 million. Besides, raw jute and cuttings were the other items of exports in this line.

Jute industry is diversifying its production range from the traditional items such as sacking and hessian to carpet backing cloth, polylined jute goods and jute finishing fabrics etc. to meet domestic as well as overseas markets' demands.

Nearly 80 per cent of the production of carpet backing is exported to U.S.A. which is the main market for many jute products. U.S.A.'s intake in 10 months of 1971-72 (April 71–January 72) was of the order of 148,870 tonnes valued at Rs. 663.92 million in respect of carpet backing cloth. Exports of sacking cloth amounted to Rs. 4.46 million (1239 tonnes), jute bagging for raw cotton 24,429 tonnes at Rs. 48.58 million, narrow fabrics 1390 tonnes at Rs. 6.6 million.

The export target for jute goods for 1972-73 has been placed at 750,000 tonnes valued at Rs. 2699 million.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

MAN-MADE FIBRE INDUSTRY

A REVIEW

Although India is a new entrant in the field of man-made fibre production, a good start has already been made on a firm footing. Notwithstanding the scarcity of raw materials, higher wages and other limitations, it is making progress in the production and exports of these items.

As against two units engaged in the production of man-made fibres, with annual production capacity of 2.5 million kg. of viscose filament yarn, today there are 9 units producing rayon and acetate filament yarn. In addition to these, two more units are producing rayon staple fibre where production capacity has exceeded 70,000 tonnes per annum. Three rayon tyre cord producing units have a total annual production capacity of about 19,000 tonnes. While 15 units have been licensed to manufacture synthetic filament, staple and tyre cord, the letters of intent have been issued to 16 firms for production of these items.

During 1970-71 the licensed capacity and production in respect of various items under man-made fibre were : viscose filament 40,500 tonnes and 36,845 tonnes, viscose staples 26,000 tonnes and 60,740 tonnes, acetate 5400 tonnes and 1622 tonnes, viscose tyre cord 19,000 tonnes and 17,000 tonnes, nylon filament 16,540 tonnes and 9936 tonnes, and polyester fibre 30,500 tonnes and 5729 tonnes respectively. As against the total licensed capacity of all these items, which has been placed at 147,340 tonnes the production was recorded at 131,873 tonnes.

The fabric production is on the point of touching 1000 million metres. For the production of art silk fabrics as much as 110,000 power looms have been employed. It is further envisaged that during the fourth Five Year Plan period an additional 40,000 powerlooms will be installed. About 0.4 million handlooms are engaged in production of pure and mixed fabrics in India. Besides texturising machines, worp and lace knitting machines etc. have also been employed.

Total capital investment in the man-made fibre industry has been of the order of about Rs. 2300 million. The import content is being gradually being decreased since indigenous material is being increased in production of man-made fibres. It is expected that during the next five years total indigenous production of man-made fibres would be doubled. Even the pulp which is required for production of viscose staple is being produced indigenously by M/s. South India Viscose Limited. It is further expected that Gujarat State Fertiliser Corporation's Caprolactum plant and establishment of various petrochemical complexes in India shall enable the industry to use indigenous basic raw material required for the synthetic fibre industry.

The man-made fibre industry in India contributes about 10 per cent of its production to the export of artsilk fabrics. The Industry's exports had been on fluctuating trend during the years from 1960 to 1971. As against the exports of 3612 million meters valued at Rs. 45.68 million during 1960, the industry fetched a record high earning of Rs. 103.53 million (90.49 million meters) during the year 1963, followed by Rs. 82.63 million (71.27 million meters) during 1964 which again decreased to Rs. 64.59 million (23.09 million metres) during 1971.

At present industry's requirement of pulp and sulphur are met through imports only. More land under eucalyptus plantation has been envisaged to be brought under cultivation to meet pulp requirements. Efforts are also being made to produce sulphur indigenously to meet industry's requirements.

SHIPPING INDUSTRY

AN OUTLOOK

India's shipping industry is making an epoch in the economic development of the country. M/s. Hindustan Shipyard, a public sector undertaking, is playing a significant role in the sphere of sea transport for efficient movement of goods for industrial progress as well as for exports. Hindustan shipyard which has the tradition of building ships and vessels, now proposes to construct mammoth vessels for the first time in India and also to provide repair facilities for giant vessels. The project is expected to be completed by the middle of 1974.

The Shipyard proposes to undertake construction of vessels in the range of 100,000 to 260,000 dwt. for this purpose. It has initiated proposals for locating a suitable place within the outer harbour. It also proposes to undertake a plan of modernisation and expansion in order to remove the imbalance in the existing equipment and physical facilities and also to replace the outmoded machinery. Phase one of this plan is estimated to cost Rs. 110 million. The work has already been executed.

The main features of this development programme are installation of heavy lifts travelling cranes, provision of sophisticated and modern machinery and equipment, modernisation of lay out and working methods and provision of a big wet basin capable of berthing two medium sized ships at a time.

It is estimated that ship building capacity of the yard would increase to 80,000 dwt. from its present capacity of 38000 dwt. when this phase would be completed by 1975. Together with the dry dock, the wet basin when completed is expected to increase the ships repairing turnover from Rs. 7.5 million to Rs. 30 million.

Under the second phase, in addition to the traditional shipways, the plans to equip the shipyard with two building docks to facilitate construction of specialised container vessels in the range of 18,000 to 30,000 dwt. and sophisticated bush carriers and tankers up to 60,000 dwt. have been envisaged.

Taking into account India's total requirements of naval crafts and dredgers of all types and limited capacity of Indian yards presently engaged in vessel building, Hindustan Shipyard has plans to enter this field on large scale. The scheme to acquire land with a water front, adjacent to the shipyard, is under progress.

Hindustan Shipyard has received orders for construction of 15 ships. Because of development programmes and increased productivity, production of the shipyard is expected to go up. Even according to the present production schedule, the first shipway (berth) will fall vacant by February, 1975 and therefore further orders from Indian shipping companies will have to be secured.

The Shipyard has deputed its senior technical officers to the shipyards of the advanced ship-building countries to Europe and Japan to study modern methods and techniques of ship construction in order to adopt those in ship building suitable to Indian conditions.

Regarding import substitution, the Shipyard has made remarkable progress in connection with latest series of vessels now under construction, and indigenous content accounts for about 55 per cent of the total cost of materials required. Till recently this was less than 40 per cent. It is expected to raise it to 70 per cent with the filling of indigenously produced main engines.

MACHINE TOOL OUTPUT RISES

Over four-fold rise was recorded in machine tool production of the Machine Tool Corporation, during the second year of its establishment in 1971-72. The Corporation turned out grinders and other equipment worth Rs. 2.87 million during 1970-71 which however increased to nearly Rs. 12 million during 1971-72. The production value of grinders alone accounted for Rs. 4.72 million. Special accessories, jigs and fixtures were produced at a value of Rs. 7.25 million.

The machine tools plant commenced its production in 1970-71. It is engaged in the production of tools and cutter grinders, vartical surface grinders, internal grinders and crankshaft grinders. The production of internal grinders commenced during 1970-71 only. This plant was set up in collaboration with Czechoslovakia. Its annual designed production capacity in respect of grinding machines of various types, has been estimated at 680 numbers and the total estimated production in terms of money has been placed at Rs. 44 million per year.

In its efforts towards producing tools for small scale industry of India, the Corporation at present is engaged in designing a simplified version of crankshaft grinder to meet the needs of the industry. It is also setting up a pattern shop and captive foundry for producing castings. The foundry is expected to be completed by the end of 1975.

Towards the goal of self sufficiency in output, the industry has expanded rapidly and has diversified its production range to cope up with the demands of India's large and small-scale sectors as also to satisfy the needs of most sophisticated markets abroad.

From a small beginning worth Rs. 10 million, the production of India's machine tool industry was estimated at Rs. 450 million in 1971. It is expected to further improve upto Rs. 650 million by the end of 1973-74.

PRODUCTION OF COMMERCIAL CROPS

New Schemes for securing substantial increase in the production of commercial crops, particularly cotton and oilseeds, are to be launched during the Fourth Plan in an effort to control prices and reduce dependence on imports. In respect of oilseeds, the production of five major varieties, namely, groundnut, sesamum, repeseed, mustard and linseed registering an increase from 7.3 million tonnes in 1969-70 to a record level of 9.19 million tonnes in the following year. The efforts to increase the production of groundnut include implementation of pacakge programme of groundnut on an area of 3300 hectares under State plans and implementation of a similar programme under centrally sponsored scheme over an area of 1.6 million hectares. In the case of repeseed and mustard plants, protection measures were organised on a commercial basis to cover an area of 130,000 hectares. A scheme for castor development covered an area of 16,200 hectares during 1971-72. Besides, cultivation of non-traditional oilseeds like soyabean and sunflower seed are also being encouraged. Demonstration programmes were undertaken to acquaint the farmers with sunflower crop and the techniques of its cultivation. Four varieties of sunflower seed of Russian origin by the Indian Council of Agricultural Research have shown that this seed with as high an oil content as 50 per cent could be successfully cultivated in India.

There was a shortfall in the production of sugarcane in 1970-71 at 128.8 million tonnes compared to 135 million tonnes in the year before. The shortfall was due to the decline in area under the crop and unfavourable weather conditions in some parts of the country. Since ratoon stunning and grassy shoot diseases lead to decline in sugarcane yields, the States and sugar factories were advised to instal plants for heat treatment of seed cane so as to provide healthy and disease-free cane to the sugarcane growers.

Actual production of cotton came down to 4.56 million bales in 1971-72 from 5.25 million bales in the preceding year. In 1971-72, the production is likely to be about 1 million bales higher than the year before. In view of the need for stepping up cotton production, Government initiated a number of new programmes in addition to the cotton development schemes already included in the Fourth Five-Year Plan. These programmes include intensive cotton district programme, extension of hybrid 4 and MCU 5, and development of cotton in newly irrigated areas. Under the first programme, since 82 per cent of the area under cotton is unirrigated resulting in low yields, Government identified six predominantly irrigated districts in Punjab, Haryana, Rajasthan, Gujarat and Tamil Nadu and seven districts in rainfed cotton parts of the country. It is proposed to cover an area of 600,000 hectares under this programme, in 1972-73. Under the extension programme, hybrid-4 which is capable of yielding additional 1.5 to 2 bales per hectare compared to the traditional strains, has been introduced. MCU-5 is another quality cotton which has proved to be promising for some of the cotton producing areas. This variety has a specific capacity of 60s to 70s counts and compares favourably with superior strains of American cotton and the lower quality cotton imported from the Arab Republic of Egypt and the Sudan. Steps are also being taken to exploit the potential offered by major irrigation projects like Rajasthan canal, Tungabhadra and Nagarjunasagar projects. It is estimated that an additional area of 250,000 hectares can be immediately brought under cotton. It is natural that with the implementation of the various development programmes, cotton imports would go down in the coming years. But some imports of superfine cotton etc. will still be required to be made until indigenous production catches up with the increasing demand.

Turning to jute, the production came down to 4.9 million bales as against 5.65 million bales in 1970-71. During 1971-72, production is expected to be considerably better than the previous year. Research on jute has been intensified as a measure of long term improvement of the crop.

Production of tobacco in 1970-71 amounted to 350,000 tonnes as compared to 337,000 tonnes in the previous year. The area of about 14,300 hectares was brought under virginia tobacco cultivation under the Centrally sponsored programme in the light soil areas of Andhra Pradesh, Mysore, Gujarat, Tamil Nadu and U. P. The object of the scheme is to produce exporttable types of tobacco of the required quality and to sustain the level of production to indigenous types for the use by the home industry. Production of pepper, ginger and turmeric was estimated at 26,000 tonnes, 28,000 tonnes and 144,000 tonnes respectively during 1971.

In respect of cashew industry, schemes on production and subsidised distribution of cashew air-layers, laying out demonstration plots, for improved practices, adoptation of prophylactic plant protection measures continued to be in progress.

Total production of lac during 1971-72 was estimated at 271,000 tonnes. Export earning is likely to be higher than in the previous year and the quantity exported was 13,300 tonnes.

SPONGE IRON PLANT TO BE COMMISSIONED

A Rs. 5 million spong iron pilot project is to be commissioned at the National Metallurgical Laboratory (NML), Jamshedpur. The plant is to be financed by the Ministry of Iron and Steel of the Government of India and is expected to go on production stream by the middle of 1973. The recurring expenditure is expected to be of the order of Rs. 1 million per annum.

The directly reduced or pre-reduced iron ore is termed as sponge iron. High quality sponge iron can be directly melted in electric furnaces for production of steel by passing through the blast furnace. Basic oxygen steel making route would reduce the demand for scrap - which is in short supply - for using electric furnaces. The N.M.L. has developed three processes for sponge iron production. These are (i) a rotary kiln (ii) vertical shaft reactor and (iii) Naphtha as reductant.

The main purpose of the pilot plant would be not only to establish and improve processes of direct reduction of iron ores and similar material but also to evaluate the response of various raw materials such as iron ores, pillets, coals obtained from various sources in the country to judge their suitability for production of sponge iron on commercial scale.

NEAR SELF-SUFFICIENCY IN STEEL

Near self-sufficiency in India's steel production can be reached in about two years. The first blast furnace of the Bokaro Steel Plant is expected to be commissioned soon. The construction work is going on a fast pace and despite difficulties energetic measures are being taken to clear the backlog.

The steel projects at Salem, Vishakhapatnam and Vijayanagar are expected to be commissioned by 1978-79. Efforts are being made to shorten the time of completion of these projects. The main measures towards self-sufficiency comprised efforts directed towards stepping up of production in the five main steel plants and speeding up of the construction of the Bokaro Steel Plant.

The performance of the public sector steel plants is periodically reviewed and steps are being taken to help the plants to increase their production. As regards the two private sector companies, Government have been in constant touch with them (M/s Tata Iron and Steel Company and M/s. Indian Iron and Steel Company) and necessary assistance was offered in helping them to increase production.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

NEW COKE OVEN DEVELOPED

A highly efficient non-by-product recovery type of oven for production of metallurgical coke has been developed by the Central Fuel Research Institute, in collaboration with Tata Iron and Steel Company.

The ovens employ both top-flue and sole-flue heating systems in an ingenious manner which has resulted in reducing coking time to nearly a third of the conventional beehive ovens, thus matching the heating rates obtained in commercial by-product recovery, regenerative flue-heated coke ovens. The faster and uniform rate of heating, apart from saving in costs, enables wide ranges and blends of coal to be carbonised for production of foundry and metallurgical coke.

88 ovens capable of carbonising about 103,000 tonnes of coal per annum have been constructed with a total capacity of about 72,000 tonnes of coke per year at the Sijua Colliery, Dhanbad. Another equal number of ovens is also under erection at the same colliery.

The coking time is about 27.30 hours, but can be further reduced if suitable quality of refractors is used in construction. The use of secondary air enables practically complete combustion of gases evolved during coking. The ovens are only marginally costlier to construct than conventional beehive ovens in use. In fact they are considerably cheaper, if productivity is considered, which is about three times that of the existing ovens. In view of the capital cost and performance, the ovens will be the cheapest of all non-by-product recovery type of coke ovens. The project was sponsored by the Tata Iron and Steel Co.

IMPORT SUBSTITUTION FOR GLASS SCALES

To obviate sizable imports of glass scales, the Solid State Physics Laboratory, Delhi have been endeavouring to develop substitute material indigenously. They have recently developed a process for the manufacture of fine etched and filled glass scales.

About sixty refractometer scales have been developed by the laboratory and supplied to instrument manuftacturers who found the scales satisfactory vis -a-vis imported material.

Fine scales in the graticules or glass are required for use as dials and scales for precise and accurate instruments like refractometers, special purpose microscopes, fire control instrument etc. require very fine scales with graticules on glass for use as dials and scales. The demand of the scales is expected to go up to 500 per month. It is hoped that the indigenous material will help remove the item from the country's import bill completely.

The process is available with the National Research Development Corporation of India.

VOLTAGE REGULATOR

A constant voltage regulator for regulating fluctuations of line voltage, which occur almost everywhere, has been developed by the Central Mechanical Engineering Research Institute (CMERI), Durgapur.

Fluctuations in line voltage not only deteriorate the performance in electrical systems but may also damage vital components. Constant supply of voltage is therefore essential for testing the performance of electrical appliances. This requirement is at present met by a saturable type constant voltage transformer which has certain disadvantages. It fails when it gets heated up with continuous use and the output voltage gets distorted with reduced load.

The new voltage regulator is claimed to be superior in quality and functions with a motor which rotates an auto-transformer, capable of compensating any change in the load voltage. It also eliminates the disadvantages of the constant voltage transformer.

The accuracy of the output voltage of regulator is stated to be within one per cent for any combination of line voltage frequency, load of power factor.

PROCESS FOR PARAFFIN WAX FROM SLACK WAX

A process for the production of costly paraffin wax from slack wax has been developed by the Regional Research Laboratory (RRL), Jorhat.

Slack wax is a by-product from Barauni and Madras refineries. From these two sources slack wax would be available at 160,000 tonnes per annum. According to RRL, the quantity is expected to increase in future.

Paraffin wax has wide applications especially in paper, textile, cosmetics, pharmaceuticals and other industries. Assam Oil Company, Digboi is the only unit engaged in the production of paraffin wax. India is facing acute shortage of this material.

The stages involved in the process are (i) heating the slack wax to an optimum temperature (2) precipitating the paraffin wax by mixtures of solvents (c) filtration of the wax (d) decolorisation by sulphuric acid treatment followed by filtration through activated clay. The yield of parafin wax attained is about 75 per cent ofslack wax.

The product is perfectly white with melting point of 58° – 67° C with oil content less than 0.20 – 0.50 per cent. Lube oil is obtained as a by-product which has also a good demand.

DIESEL ENGINES

The diesel engine industry in India covers a cross section of the industrial pattern; there are large - scale established manufacturers on the one side as well as small-scale units spread over many parts of the country.

Started in the 1930's, the industry has made a steady production expansion over the years. By 1955 indigenous production by the organisised sector crossed the 10,000 number mark to make the country self-sufficient in regard to small horse power engines required mainly for drawing water pumps used for irrigation purposes. Making a fourfold increase the output touched 42,000 numbers in 1960. By 1965, production reached a level of about 86,000 numbers and further went up to 142,000 numbers in 1969. However, due to reduced internal offtake production in 1970 came down to 70,500 numbers.

Production Range

With about 30 units in the organised sector and many in the small scale sector, the industry manufactures engines from 3 hp. to 800 hp. As for the types of engines turned out, they cover both horizontal and vertical, water and aircooled, slow and high speed and for different power applications such as locomotives, trucks and tractors, industrial, irrigation and marine. The number of brands that are manufactured in the country totals to more than 100. The total annual capacity in both the sectors is estimated to be around 250,000 numbers. The installed capacity in the organised sector was around 1,84,723 numbers at the end of 1971.

As part of product diversification, M/s. Garden Reach Workshops, Calcutta, a public sector undertaking, have establised a factory for the manufacture of diesel engines of higher horse power ranging from 280 hp. to 18,000 hp. The production range is to include heavy marine type of engines up to 10,500 hp.

A diesel engine unit in the private sector has taken up the production of heavy industrial type of engines up to 545 hp. In 1970, the firm turned out 40 such engines with indigenous content ranging from 60 per cent to 70 per cent. Many engines in the horse power range of 190 to 375 are also turned out by the unit. Another unit manufacturing heavy diesel engines of

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high speed type has taken up manufacture of a new type of engine for fitment to earth moving equipment. With a production of 892 numbers in 1970, the engines have a high degree of indigenous content.

Since the progress of diesel engine industry went along with the progress of many other industries such as pumps, compressors, road rollers, concrete mixers, generators etc., the manufacturers are in a position to offer diesel engines along with such equipment.

The production capacity and range of the Indian industry is such that import of combustion engines, particularly marine engines up to 320 hp. is not considered necessary.

Export Trade

Diesel engines and parts are being exported from India to about 45 countries in the world. The diesel engines have been accepted by the original equipment manufacturers of advanced countries to go along with the equipment manufactured by them. Though stationery diesel engines are the main item of export, there is a growing overseas demand for marine and vehicular type diesel engines.

In 1970-71 exports of marine diesel engines both vertical and horizontal amounted to Rs. 6.89 million while diesel engines for motor vehicles brought in Rs. 9.17 million. Export value of stationery diesel engines stood at nearly Rs. 16 million. Parts for marine and stationery engines earned Rs. 12.67 million through overseas supplies.

Saudi Arabia, Sudan, A.R.E., Syria, Dubai and U.K. were the main importers of marine diesel engines while diesel engines for motor vehicles were mainly directed to Ceylon and A.R.E.

Countries like Iran, Iraq, Kenya, Nigeria, Philippines, Saudi Arabia, Sudan, Thailand, A. R. E., Afghanistan, S. Yemen Republic, Dubai, Fiji, Muscat, Netherland, Syria, Australia, Ceylon, Jordan, Greece, Singapore etc. were the major importers of stationery diesel engines in 1970-71.

As for stationery diesel engine parts, A.R.E. and German Federal Republic accounted for Rs. 3.42 million and Rs. 3.25 million respectively. Iran, Iraq, Nepal, Nigeria, S. Yemen Republic, Saudi Arabia, Singapore, Sudan, Syria, Thailand, and U. K. too imported substantial quantities of parts from India.

In the first three quaters of 1971-72 (April-December 1971) export sales of diesel engines brought in Rs. 16.35 million while parts and components fetched another Rs. 16 million.

Aftersales Service

One of the important aspects of overseas sales of diesel engines is the arrangements made for effective after sales-service. Apart from the fact that technical-experts are being sent out for this purpose, training courses are being arranged with the manufacturers in India to impart such technical knowledge to the personnel of overseas distributors and dealers.

Besides direct exports, diesel engines are sent out to overseas markets as components of complete machinery, especially automobiles.

Another noteworthy aspect of the industry is its capacity to export technical know-how for establishment of manufacturing units in foreign countries. Two such joint venture schemes are already in the implementation stage in Malaysia and Philippines. ☐

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REFRIGERATOR EXPORTS TO POLAND

An order for the export of 5,000 numbers of refrigerators (250 litre capacity) has been secured from Poland recently. The supplies, valued at Rs. 2.75 million, are to be made to M/s. Universal Warszawa, Poland. The Indian party that has secured the order is M/s. Hyderabad Allwyn Metal Works Ltd., Sanat Nagar, Hyderabad-18. The supplies in respect of this export order are to commence from September, 1972 and the entire order is expected to be completed within five months.

India's total exports of refrigerators and parts were of the order of Rs. 0.44 million during 1970-71 but the order from Poland was the largest received by India in this line in recent times. In 1970-71, the importing countries were Zambia, U.S.S.R., Sudan, Australia, Ceylon, Kuwait, Iran, Hong Kong and Qatar.

The Hyderabad firm has also on hand an export order for the export of 3 numbers of Allcut Metal Cutting Band Saw Machines to New Zealand at a value of £ 1800. This equipment is to be shipped soon.

Besides, the above firm also manufactures bus body kits, bottle coolers, steel furniture, LPG cylinders, industrial ventilation equipment, heavy duty trailers, hermetically sealed compressors.

The company have also developed air-craft seats and they are presently supplying 220 numbers of the seats against an order received from M/s. Hindustan Aeronautics Limited, Kanpur. Being the first to develop the item in India, the firm proved to be instrumental in saving foreign exchange.

The firm has recently been licensed to manufacture 60,000 numbers of compressors per annum which can be used in their own manufacture of refrigerators as also for export. They have plans to introduce new products in their manufacturing range such as deep freezers, washing machines, cooking ranges and scooters.

TURNKEY PROJECT IN AFGHANISTAN

United Nations have awarded a sizeable contract to India for setting up a complete Soil, Cement, Concrete and Bitumen Testing Laboratory at the United Nations Development Programme (UNDP) Project in Kabul (Afghanistan). The Indian party that secured the contracts was M/s. Associated Instrument Manufacturers, Sunlight Building, 26-27, Asaf Ali Road, New Delhi-1. The valve of the contract is over U.S. $ 13,000.

The Laboratory is being established for the Central Authority for Housing and Town Planning, Kabul. The Indian offer was accepted against stiff competition from American, British and Japanese manufacturers.

The Indian industry has achieved good progress in the cement mill machinery industry. It turns out complete cement plant, both wet and dry process, having a capacity ranging between 300 tonnes to 1000 tonnes per day. The cement machinery manufacturers of the country have already exported complete cement plants. In 1970-71, the value of export earnings of cement making machinery stood at Rs. 0.98 million. Kuwait and Thailand were the buyers for this item.

Out of the ten units engaged in the manufacture of the machinery, 8 units manufacture complete plants. Some of the existing factories can also take up manufacture of shift kiln plant with a capacity ranging from 30 to 200 tonnes, based on indigenous know-how.

As against an installed capacity of Rs. 260 million, the production of cement machinery during 1970 was of the order of Rs. 84 million.

PRECISION INSTRUMENTS AND EXPORT TRADE

The export value of scientific, medical, optical, measuring and control instruments and apparatus stood at Rs. 13.6 million in the first ten months of 1971-72 as compared to Rs. 11.33 million in the same period of 1970-71. In the full year of 1970-71, the value was Rs. 14.22 million.

M/s. Instrumentation Limited, Kota have secured export orders from a number of countries in West Asia and South East Asia for the sale of their products on retail basis. Important customers during 1971-72 were Iran, Syria, Iraq, Turkey, Egypt and Nepal.

The company has a precision instruments plant at Kota (Rajasthan) and a mechanical hydraulic and Pneumatic Instruments Plant at Palghat (Kerala). The Kota plant produces transmitters, electromagnetic and electronic instruments. In 1970-71 the value of their production was of the order of Rs. 35.7 million. The company are making constant efforts to indigenise their production range and reducing the foreign

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exchange content of their products in the near future. They have adopted a policy of sub-contracting components to ancillary industries specially small-scale units.

The Instruments Industry in India achieved a production value of about Rs. 400 million during 1971-72. The various instruments manufactured in the country include scientific, optical, surveying and mathematical instruments, industrial precision control instruments, electrical recording and measuring instruments, X-ray and electro-medical equipment, component industries such as industrial jewels and electrical bimetal contacts.

Certain new instruments were manufactured in India for the first time in 1971 and include electrostatic photo copying (zerographic) machine, cardiograph-recording (ECG), paper and blood transfusion and infusion equipment.

EXPORT SUCCESS OF PVC PRODUCTS

While total exports of plastic products reached a level of Rs. 87.5 million during 1970-71, the share of PVC leather cloth was Rs. 7.6 million, PVC sheeting Rs. 5.4 million and PVC fabricated goods Rs. 1.3 million.

Polyvinyl chloride (PVC) was first made in India in 1961 with the commissioning of a 5500 - tonnes capacity plant in 1961. Since then the manufacturing capacity was improved substantially and new units have come up.

M/s. Bhor Industries Limited, 16, Apollo Street, Bombay-10 (BR), exported leather cloth and PVC films and sheetings to several customers round the world, including the U.K., East and West Africa, West Asia, Australia, Malaysia, German Federal Republic, Ceylon, Thailand, Sudan, Greece, West Indies, Yugoslavia and Mauritius. The company was among the nine recipients of National Awards for outstanding exports on the basis of their export performance during 1968-69 at Rs. 4.3 million.

Their product range includes leather cloth, PVC cloth, unsupported PVC films, plastic floor tiles etc. Their plant at Bhor near Poona, which started with the manufacture of fumigations tents, now produces among others, ground sheets, oil cloth, bookbinding cloth and leather cloth. Their plant in Bombay (Worli) manufactures a wide variety of coated fabrics and unsupported PVC films while another plant at Borivli introduced several products for the first time in India such as Vynatile floor tiles, Steelgrip insulation tape and Feathertouch Expanded Vinyl.

The company has also succeeded in exporting know-how and machinery for the manufacture of PVC products. To Ceylon, for instance; they provided technical know-how and machinery to M/s. Leather Cloth Company Ltd. which is the first Indo-Ceylonese venture of its of kind in the plastics industry. The company conceived and supervised the entire undertaking and built and shipped over a complete leather cloth manufacturing plant - comprising mixing, spreading and embossing units, with an automatic electrical remote control panel. The company also helped to set up a plant in Uganda for the manufacture of leather cloth. In this case, they played a purely technical role and contributed advanced know-how.

SURGICAL INSTRUMENTS TO SOVIET UNION

Export of surgical instruments to U.S.S.R. by M/s. Surgical Instruments Plant, Madras amounted to Rs. 2.91 million in the year 1970-71 comprising 347,800 instruments.

The company got export orders for 791,700 instruments at the value of Rs. 5.97 million during 1971. About 565,300 instruments of value of Rs. 4.23 million have already been exported upto the end of 1971.

The surgical instruments plant produced 423,212 instruments valued at Rs. 393 million during 1970-71. In the following year 427,671 instruments were produced till December, 1971 of the value of Rs. 3.45 million. In addition, job orders of the value of Rs. 938,000 were executed during 1971.

OVERSEAS DEMAND FOR STEEL PIPES AND TUBES

During the first ten months of 1971-72 (April 71 - January 72), India's export earnings of steel pipes, tubes and fittings exceeded the export earning of these items for the entire year of 1970-71. Nearly Rs. 87 million were earned as compared to Rs. 70 million in these periods. Among the categories exported are cast iron tubes and pipes, seamless tubes and pipes, galvanised and non-galvanised tubes and pipes.

M/s. Gujarat Steel Tubes Limited, Bhadhra, Post Box 144, Ahmedabad-1, improved their export performance of steel pipes from 3040 tonnes in 1966 to 9741 tonnes in 1969. They have exported to as many as 33 countries. Against competition in terms of quality and price from advanced countries like Japan, the firm managed to sustain their exports to most sophisticated markets like the U.S.A. and Federal Republic of Germany. In tune with customers' preferences, the firm had taken special measures such as manufacture of ASTM pipes, developing an anti-rust liquid coating for pipes for rust-prevention and for packing pipes in hexagonal shape instead of the traditional round building.

The Indian economy is not only self-sufficient in the production of steel pipes and tubes but also has adequate capacity to spare for export. The installed capacity for production of black and galvanised steel tubes and pipes, ERW and seamless steel tubes stood at 601,460 tonnes, 53,000 tonnes and 39,600 tonnes respectively by the end of 1971. Actual production of these items was estimated at 218,350 tonnes, 31,920 tonnes and 34,305 tonnes respectively.

GALVANISED PRODUCTS FOR EXPORT

Galvanised iron and steel products are estimated to have been exported to the tune of Rs. 65.56 million in 1970-71.

A galvanised products manufacturer in India has recently secured a global tender from Ceylon for the supply of stay rods 6′ x 5/8″ and 8′ x ¾″, galvanised M.S.D. brackets, galvanised M.S. shackle strips and channel iron 4″ x 2″ x ¼″. The value of the contract was Rs. 238,290.

The Indian party that secured the global tender is M/s. Beegee Corporation, Private Limited, 25, Factory Area, Patiala 2. The firm is expected to supply the above within six months from the date of establishment of the letter of credit for the overseas party.

Earlier, the Patiala firm secured an order worth Rs. 2,60,850 from the same Ceylonese party which was executed last year.

UPTREND IN EXPORT OF CASTINGS

The export earning of a number of Indian engineering items has considerable headway in recent years.

Overseas supply of sanitary castings, industrial castings and forgings was valued at Rs. 50 million in 1971-72 as against Rs. 48 million in 1970-71. Similarly foreign exchange earning of the machine tool industry improved to Rs. 31 million from Rs. 28.4 million. The progress in the group of steel structurals was more notable at Rs. 74 million in 1971-72 as compared to Rs. 61.7 million in the preceding year. Of this, transmission line towers fetched Rs. 42.5 milllon while steel structurals earned Rs. 27.5 million and cranes, lifts and hoists etc. netted another Rs. 4 million.

M/s. New Standard Engineering Co., NSE Estate, Goregaon, Bombay-63 (NB), who are engaged in the production of grey iron castings, machine tools, steel, structurals, electrically operated cranes etc. earned as much as Rs. 6 million in foreign exchange during 1971-72 through export of their products.

The overall sales of the Bombay firm during the year also improved to about Rs. 49 million from Rs. 41.5 million in the previous year. Currently the company has orders on hand worth Rs. 50 million.

CENTRIFUGAL PUMPS ON EXPORT STREAM

India's export of centrifugal electric motor operated pumps including centrifugal engine operated pumps during 1970-71 was of the order of 10,420 numbers at a value of Rs. 4.77 million.

During the period of 10 months of 1971-72 (April 71– January 72) exports of these items fetched Rs. 3.47 million (8750 numbers). Iraq emerged as the largest buyer of electric motor operated centrifugal pumps whose intake was 1379 numbers valued at Rs. 0.42 million, followed by Saudi Arabia, Sudan, Muscat, Bahrein Island and Vietnam Republic. Saudi Arabia was the main market for centrifugal engine operated pumps with an offtake of 1327 pumps valued at Rs. 0.37 million. Vietnam Republic was the second major destination for this variety of centrifugal pumps. Exports to that country amounted to Rs. 0.29 milllion (1090 numbers). Iraq, Sudan, Dubai and Bahrein Island were the other important buyers.

M/s. Sangam Electrical and Mechanical Industries Private Limited, Industrial Estate, Sangli, Maharashtra exported 2000 centrifugal pumps ranging from 50 x 50 mm to 100 x 125 mm to the Middle East.

The firm is presently engaged in production of electric motors, monoblocks and centrifugal pumps without any foreign collaboration.

COMMON SALT ON EXPORT FRONT

Export of salt during the current year 1972-73 is expected to reach a new high at about 60,000 tonnes. Salt exports from India during 1970-71 were of the order of Rs. 5.14 million (104,342 tonnes). The major destinations were Nepal, Japan, Korea Republic, Singapore and Tanzania. Of these, Nepal's intake was the largest, accounting for as much as Rs. 2.22 million (27,387 tonnes) followed by Singapore at Rs. 1.19 million (20,326 tonnes), Korea Republic Rs. 0.6 million (20,678 tonnes).

A big deal for export of salt was recently signed with Nepal's Salt Trading Corporation by the State Trading Corporation of India. Accordingly, India has to supply 15,000 tonnes of salt to Nepal during 1972-73. Of this supply, about 3000 tonnes would comprise of uncrushed varieties, and 12,000 tonnes of crushed varieties. The exports are expected to be effected at a value of Rs. 30 per tonne in case of uncrushed variety and Rs. 30.75 in respect of crushed variety. Earlier export of 7000 tonnes of marine salt to Nepal was also made by Marine Salt Works, Saurashtra (Gujarat) between January-June 1972.

Nepal has further entered into agreements for supply of salt with a number of other salt works in India. Thus total exports from India to Nepal are expected to be of the order of about 60,000 tonnes.

India's production of salt is expected to go up considerably in 1972-73 as a result of delay in monsoon. In Saurashtra region, the rise in salt production is expected to be around 10 to 15 per cent. As against total production of 2 million tonnes in the West coast region in Gujarat during 1970-71, the output during 1971-72 was 2.2 million tonnes.

EXPORT PERFORMANCE AND POTENTIAL

FOREIGN EXCHANGE FROM JOINT VENTURES ABROAD

Foreign exchange earnings from India's joint industrial ventures abroad that have so far gone into operation are estimated at Rs. 5 million accrued as dividends and Rs 5.87 million by a way of technical fees etc. Additionally an amount of $ 25,000 was secured from the technical collaboration arrangement entered into by an Indian party in Argentina. In fact, this project is expected to earn $ 100,000 as technical know-how fees after completion of the agreement term.

At the end of May 1972, 135 joint venture projects abroad have been approved by the Indian Government. Of these, 32 projects have already gone on production stream and 64 are in various stages of implementation.

The fact that only a few of the approved joint ventures have gone into production prior to 1969, many others only recently and some after 1970 would reveal that the earnings and remittances of these projects are not inconsiderable. Again in certain cases the profits earned are adjusted against initial loss and in certain others Indian investors were obliged to purchase additional shares of the projects. It is reported that there are instances where some of the projects have suffered losses inspite of making good headway and in some others repatriation was not possible because of procedural difficulties abroad.

In addition to the Indian equity participation in the form of machinery, equipment and know-how, foreign exchange from additional exports of machinery equipment and raw materials is reported to have been earned through these ventures to the tune of about Rs. 42 million. Further, some of the projects which have not yet gone into production created opportunities for the export of Indian goods and services. The steel foundry plant being set up in Malaysia having already earned and remitted foreign exchange of about M $ 60,000 as consultancy fee is a case in point. Again, a readymade garment factory in Mauritius, likely to go into production in 1973, has earned and remitted foreign exchange of the order of Rs. 1.3 million by way of export of machinery. Yet another project in Malaysia, expected to go into production in mid-1973, secured about Rs. 2.5 mllion by way of machinery exports.

COFFEE EXPORT TO USSR

Under an agreement concluded recently India will export 4,000 tonnes of coffee to the Soviet Union this year.

Earlier also U.S.S.R. bought 2000 tonnes of Indian coffee in 1972. U.S.S.R., in fact, is one of the major importers of Indian coffee among non-quota countries and accounts for about a quarter of the total coffee exports from India.

Export of coffee is regulated under the International Coffee Agreement 1969 to which India is a signatory. Under the agreement India's export quota has been fixed at 21,000 tonnes for the Coffee 1971-72 (October 1971-September 1972). India however, a substantial volume of coffee's trade non-quota countries.

Total exports of coffee during 1970-71 at Rs. 251 million was an improvement over the exports at Rs. 196.15 million. For the first quarters of 1971-72 (April-December) the export valued at Rs. 190.10 million.

In recent years there has been an increasing in export of processed coffee from India. Exports coffee extracts and essences improved to Rs. 11 million from Rs. 10.80 million in 1969-70. The exports for April-December 1971 amounted Rs. 8.62 million.

The area under coffee cultivation is estimated about 130,700 hectares. The production of coffee also improved from year to year about 109,775 during 1970-71, as against 63,600 tonnes in 1969-70.

EXPORT TRADE IN METAL SCRAP

Export trade in metal scrap was of the order Rs. 73.4 million in 1970-71. Of this, the share of iro and steel scrap was Rs. 69.5 million and non-ferrou metal scrap was Rs. 3.9 million. The iron and steel scra was exported in the form of filings, worn out article and scrap used as prime varieties such as bar ends, shee sheetings and other remnants. Japan was the leadin purchaser with Netherlands, Egypt and China Republi as the other major buyers. Non-ferrous metal scra was sold overseas mainly in the form of manganes sludges and other non-ferrous metal residues, waste an scrap of bronze, zinc alloy, zinc dust and alloy waste.

In the first ten months of 1971-72 metal scra exports were of the order of Rs. 19.47 million of which iron steel scrap amounted to Rs. 17.32 million.

The Metal Scrap Trade Corporation has bee organising the export of the scrap. It has been recently decided to diversify the functions of the Corporatio Under the new arrangement, the Corporation will n be merely an export canalising agency but will lo after e other u activities n such as scrap collection an stribution. It will also set up scrap processing achinery at appropriate places in the country. Also e Corporation will now be under the administrative ntrol of the Ministry of Steel and Mines (Department Steel).

ASHEW EXPORTS UP

India is the world's Number One exporter of cashew ernel. During 1971-72, the export earning registered n increase of about 20 per cent as compared to the receding year. The export value was Rs. 620 million s against Rs. 521 million in 1970-71.

The major importers that increased their intake uring 1971-72 were USA, USSR, Canada, U.K., apan, Netherlands, Hong Kong, Czechoslovakia and West Germany.

Besides cashew kernel, India exports cashew-shell oil in sizeable quantity. The 1970-71 export of the oil was about 6925 tonnes valued at Rs 7.86 million. U.K. was the major market with an intake of 3083 onnes at Rs. 3.45 million followed by Japan with 2005 onnes at Rs. 2.47 million and U.S.A. with 1282 tonnes at Rs. 1.13 million. For the first three quarters of 1971-72 the export of cashew shell oil amounted to about 4273 tonnes valued at Rs. 4.8 million.

All cashew kernel shipments from India are subject to the compulsory quality control and preshipment inspection.

The total area under cashew kernel cultivation is estimated to be around 500,000 hectares, while the average annual yield of cashew nuts in the country is about 150,000 to 160,000 tonnes. There are about 200 factories engaged in the processing of cashew nuts. The cashew industry is concentrated in Kerala, especially in Quilon, Calicut and Irinjalakuda; Mangalore in Mysore; Pansuti in Tamil Nadu; Goa and Vetapalam in Andhra Pradesh.

EXPORTS OF COIR AND COIR PRODUCTS UP

India's coir industry is well-established in export markets. The export value of coir and coir products during 1971-71 was of the order of Rs. 148.5 million as compared to Rs. 138.25 million in 1970-71.

Coir yarn contributes a major share in the exports. As against Rs. 76.45 million (333,471 quintals) worth of exports during 1970-71, the yarn fetched Rs. 72.2 million during 1971-72. Exports of other items during 1970-71 and 1971-72 respectively are: coir rugs and carpets Rs. 12.85 million and Rs. 16.85 million and coir mattings Rs. 6.5 million and Rs. 7.0 million.

Apart from these main items, coir fibre, coir cordage and ropes, curled coir, rubberised coir good and other types of coir are supplied overseas.

Country wise Czechoslovakia, Federal Republic of Germany, Belgium, Bulgaria, France, Hungary, Italy, Netherlands, Poland, Rumania, Yugoslavia and U.K. were the main markets. U.S.A. is also one of the important markets for coir products, especially carpets and rugs.

For coir mats and matting, East and West European markets as also Australia, Canada, USA and Japan are the important markets.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

AUTOMOBILES AND ANCILLARIES

Eight main vehicle manufacturers in India are engaged in the production of vehicles, trucks, buses, jeeps, cars and disel engines for commercial vehicles. The commercial vehicles range from 3.35 tons payload to 16 tons payload. The typical payloads are 1, 3, 5, 7, 10 and 16 tons. In the line of two-wheelers like scooters and motor-cycles there are eight companies engaged among which three manufacture three-wheeler auto-rickshaws too. There is one manufacturer who is producing 50 c.c. petrol engines.

During the last two years, Government have been favourably considering plans for expansion of the existing units and installation of new units. Proposals to expand capacity have been recently approved in the field of commercial vehicles, cars, scooters, motor cycles and three wheelers. So far five letters of intent were issued to the manufacturers of passenger cars for a capacity of 111,000 units and 24 letters of intent for manufacture of scooters with a total capacity of about 553,000 units and 9 letters of intent for three-wheelers for 147,000 units per annum.

The production of vehicles during 1971 has shown uptrend in almost every sector. The output of commercial vehicles was 43,526 numbers, showing a 7 per cent rise over the production of 40,558 numbers in 1970. About 11,050 numbers of jeeps were produced as against 9334 thus revealing a 19 per cent improvement. Motor vehicles' production was 39730; numbers. In this case, however, there was a 7 per cent fall due to introduction of scooter production by one of the units. A sixteen per cent improvement was registered in respect of scooters whose production in 1971 was of the order of 67,212 numbers. A big rise was noticeable in the output of three-wheeler auto rickshaws at 6146 numbers as against 2230, registering a 45 per cent improvement. Against 11086 numbers, the moped production was of the order of 14,113. In respect of vehicular diesel engines, however, there was a fall in production from 3300 to 1895 numbers.

The export by automobile industry has increased during 1971. It is estimated at Rs. 110 million against Rs. 80 million during 1970.

Adequate capacity is available in India for the manufacture of a variety of automobile ancillaries which include nozzles, nozzle-holders, elements, delivery valves, single cylinder pumps, multi-cylinder pumps, filters, dynamos, starter motors, electric horns, gaskets, oil seals, shock absorbers, spark plugs, ignition coils, magnetos, crank shafts, steering gears, pistons, cylinder livers, valve guides, carburettors, heat exchangers, clutch plates, taxi meters etc.

During 1971, increase in production was noticeable in respect of most of the automobile ancillary items. Production of elements improved from 22,15,045 numbers during 1970 to 1,97,46,608 numbers during 1971; delivery valves from 20,00,000 numbers to 25,93,172 numbers; single cylinder pumps from 3,06,713 numbers to 3,18,515 numbers; multi-cylinder pumps from 67,824 numbers to 81,920 numbers; filters (oil, air and fuel) from 5,26,250 numbers to 9,68,270 numbers; starter motors from 1,37,300 numbers to 2,04,842 numbers; wheel and rims from 6,29,631 numbers to 7,79,811 numbers; shock absorbers from 11,70,920 numbers to 14,41,944 numbers; spark plugs from 29,02,406 numbers to 35,17,892 numbers; ignition coils from 2,10,776 numbers to 2,99,468 numbers; gears from 6,200 tonnes to 2,50,951 tonnes; cylinder liners from 2,30,971 numbers to 2,82,369 numbers; engine valves from 38,54,400 numbers to 45,34,915 numbers; carburators from 4,137 numbers to 9,463 numbers; fuel pumps from 10,364 numbers to 20,030 numbers; radiators from 1,05,256 numbers to 1,37,006 numbers; panel/dash board instruments from 8,38,000 numbers to 9,70,530 numbers; propeller shafts from 76,864 numbers to 88,812 numbers; thinwalled bearings from 76,35,404 numbers to 87,16,959 numbers; thickwalled bearings from 1,27,702 numbers to 1,67,355 numbers.

Automobile ancillary industry has also made good progress in the achievement of indigenous content. The level of production in terms of value was of the order of Rs. 1,069 million during 1970-71 as against Rs. 968 million in 1969-70.

The ancillary industry has also shown a good progress in the field of exports. The level of exports has risen to Rs. 41.4 million during 1970 from Rs. 31.6 million during 1969. In the coming few years the exports are expected to reach Rs. 100 million.

During 1971-72, in order to achieve self-sufficiency, certain ancillary units were allowed for import based on their maximum utilization of plant and machinery capacity.

Around 91 industrial licensing applications were received for bringing out new entrepreneurs in the field of various automobile items like steering gears, filters, brake parts, wheels, transmission gears, cylinder heads, auto electrical items, piston assemblies, clutch assemblies, dash board instruments, valves, automobile bearings, propeller shafts and axle shafts etc.

A REVIEW OF PETROCHEMICAL INDUSTRY

Good progress has been registered in the manufacture of petrochemical raw materials, intermediates and end-products in recent years. On the raw material side, the Indian Petrochemicals Corporation Limited in the public sector are now implementing the Gujarat

Petrochemical Complex consisting of an Aromatics Project and an Olefins Project along with some of the down-stream units of these two plants. Major part of the Gujarat Complex is expected to be in production by 1974. Aromatic Project is to produce 21,000 tonnes of Ortho-Xylene, 24,000 tonnes of DMT and 2500 tonnes of Mixed Xylenes from a special fraction of naphtha obtained from the Gujarat Refinery. The project is nearing completion and production of DMT is expected to begin soon. The Xylene part of the plant is expected to be commissioned late in 1972. The production of DMT will thereafter be from the basic raw material; right now it is based on imported ortho-xylene.

The Olefins Project for cracking of naphtha is to produce a number of Olefin Streams. The cracker is expected to consume 453,000 tonnes of Naphtha per annum which will be obtained from the Gujarat Refinery. This project is expected so go on stream in 1974.

Additionally a 30,000 tonnes per annum integrated DMT-Polyester Plant is proposed to be set up in conjunction with the Assam Refinery.

In the private sector, three Naphtha Crackers are already in existence. One of these, which was commissioned in 1966, is using ethylene produced by it largely for captive conversion to L. D. Polyethylene. Another unit was commissioned in 1968 for producing four streams of Ethylene, Polylene, Benzene and Butadiene. The cracker has only begun trial runs recently and uses a small naphtha cracker for captive use of the ethylene stream to produce PVC.

In the manufacture of petrochemical intermediates the Olefins Project, mentioned above, will produce a number of primary petrochemical raw materials. These are proposed to be processed to the stage of intermediates. The details of the intermediates units that are being set up are : acrylonitrile (24,000 tonnes per annum), polyethylene (40,000 tonnes per annum), polypropylene (30,000 tonnes per annum), detergent alkylate (30,000 tonnes per annum) and ethylene glycol (20,000 tonnes per annum). These projects are expected to go on stream in 1974. Out of these, polyethlene and polypropylene will be providing plastic materials of varying specifications.

The acrylonitrile project will provide an important raw material for the manufacture of acrylic fibre as well as methyl methacrylate. Acrylic fibre can be blended with wool and is expected to significantly replace high quality wool which is imported at present. Detergent alkylate proposed to be produced is to be utilised for the manufacture of synthetic detergents. This will reduce dependence on imported tallow and edible oils used in the manufacture of soaps. Ethylene glycol is to be used as raw material by the polyester staple fibre and filament yarn manufacturers. By the end of the Fourth Plan (1973-74) approximately 40,000 tonnes of polyester staple fibre/filament yarn are expected to be produced in India.

In addition to the above products, the Gujarat State Fertilizer Company is implementing a project for manufacture of 20,000 tonnes of caprolactum. This project is expected to go on stream in 1974. Caprolactum is a raw material for the manufacture of nylon filament yarn/fibre. At present the nylon filament yarn production in the country is approximately 10,000 tonnes based on imported raw materials.

Four units in the private sector for the petrochemical intermediates will be using ortho xylene for the Aromatics Project mentioned above for the manufacture of phthalic anhydride. It will be using for the manufacture of pesticides, dyestuffs and other important organic chemicals

In the petrochemical end products field, the Indian Petrochemicals Limited are setting up a Synthetic Rubber Project using the butadiene from the naphtha cracker. With the coming into market of this product, it is expected that pressure of demand on natural rubber will be reduced. A unit is also being set up in the public sector for the manufacture of 12,000 tonnes of acrylic fibre, which will be used in the woollen garment industries. Another project is being set up for the manufacture of 7000 tonnes of polyester filament yarn, using DMT from the Gujarat Aromatics Project. This project will considerably replace cellulosic fibre.

In the private sector there are five projects for the manufacture of polyester filament yarn which will be using DMT produced in the Gujarat Aromatics Project.

In addition, plastic raw materials and products are produced in India from bases other than petrochemical. One unit producing LD Polyethylene and three units producing PVC are based on non-petroleum feed stocks (alcohol and carbide). Also there are two units producing polyestyrene. One of these is converting styrene monomer into polyestyrene.

V.T. 12 OIL ENGINE DESPATCHED

The recent manufacture of V.T. 12 engine, by M/s. Kirloskars Cummins, is an important development. The engine enables the working of gaint earth-moving equipment such as high-tonnage dumpers, locomotives and marine crafts. It packs 800 h.p. with 2000 r.p.m.

The engine is expected to save foreign exchange for India and create export opportunities in potential markets abroad like the Arab Republic of Egypt, the South East Asian countries. Australia, Kenya and Eastern Europe. Negotiations are under way with Netherlands. The company plans to manufacture two engines per week against its original production plans of 20 engines per annum.

The manufacture of the engine is considered to be only a precursor to the next step of power in the four figure range.

There are three units presently engaged in the production of heavy duty diesel engines required for industrial and marine applications. Against their installed capacity of 1440 numbers per annum, the production during 1971 was estimated at 887 numbers valued at 62 million. M/s. Garden Reach Workshops Calcutta have established a factory for the manufacture of diesel engines from 280 H.P. to 18,000 H.P. of the kind used as main propulsion unit and auxiliaries in the ocean-going vessels. The other units M/s. Kirloskar Oil Engines Ltd., and M/s. Kirloskar Cummins are engaged in the manufacture of engines mainly for industrial applications. Both these units have achieved an indigenous content of 70 to 90 per cent.

In India, there are to-day about 700 manufacturers of all varieties of diesel engines (3 HP to 380 HP) in the organised, cooperative and small scale sectors. The installed capacity in the organised sector was about 1,84,725 numbers (1971), while the output was 1,41,845 numbers (1969). The country is almost self-sufficient in regard to engines ranging upto 800 BHP and can supply engines for many applications—agricultural, industrial and marine.

PRODUCTION OF AUTOMATIC WATCHES STARTED

India has started the production of automatic watches. The country's first automatic watch under brand name 'HMT Automatic' is expected to be released in September this year. This automatic watch stood all the tests of time, date and climate in western atmosphere too.

India's total production of automatic watches during 1972-73 would be of the order of about 20,000 numbers and by the end of 1975 it would go up to 2,00,000 numbers.

In addition to the existing watch manufacturing unit in Bangalore, the Hindustan Machine Tools has commissioned a watch manufacturing plant at Srinagar in Kashmir. It proposes to set up an another plant on its complex at Bangalore.

During 1970-71 India exported wrist watches and other watches worth Rs. 29,593 (274 numbers). The major importing countries were Australia, Netherlands, New Zealand, Norfolk Island and Denmark.

During the period of 9 months from April-December 1971, as much as 707 wrist watches were exported abroad. The major importing country was Australia whose intake was 600 watches worth Rs. 22,250. The other destinations were Afghanistan, New Zealand and Sudan.

SWEDISH PRESS ON INDIAN MACHINE TOOLS

The Swedish magazine "Verkstadstidningen" has recently given good coverage to the Machine Tool Industry of India in general and the second All India Machine Tool Exhibition in particular. The translated version from the Swedish magazine is as follows :

"There is a rather important machine tool industry growing up in India, where the biggest concerns now have ten thousands of working men employed. The quality of the machine tools from the big manufacturers is noticeably high, and some English manufacturers have their products in full or in part built in India and then marketed with their own well-known name.

Among machines built on license in India, we can mention such marks as Prag-Jones-Shipman. Gedee-Weiler, Ex-Cell-0, HMT-Gilmemeister, etc. In the Indian machine shops they are using modern machinery from well-known American, German and Japanese manufacturers".

Referring to the Machine Tool Exhibition organised recently near Bombay, the Magazine stated that 350 machines were exhibited including "lathes and automatics, drilling, boring and milling machines, machines for grinding, polishing and lapping, shaping, broaching, gear cutting machines, saws, tapping and threadcutting machines, plate shop equipment and portable electric tools etc."

The Magazine further said that "lately India has taken up manufacture of machines with numerically controlled spindles. Central Machine Tool Institute (CMTI), Bangalore, has developed a system with numerical control in two axis with movements from point to point, Cemnumerio 621, exhibited together with Cemnumerio 731 a 3-axis system with floating zero, governing a milling machine HMT-E 2V".

On the work done by CMTI - a National Research Institute, the Magazine stated that "it has a main task to assist the machine industry with engineering knowledge. This task is being filled by designing machinery and equipment. The designs are sent to the industries for disposal. The work also comprises standardization of electrical, mechanical and hydraulic equipment, testing of machines etc. Research is conducted in production technique, metallurgy and measuring technique. Prototypes are built, and the Institute is giving much attention to technical information and documentation".

OIL FIND NEAR AHMEDABAD

The Oil and Natural Gas Commission (ONGC) has found encouraging source of oil in the first well drilled on a new prospect in Gujarat. The new discovery is at Linch, a place about 80 kms. from Ahmedabad. Tests have shown that the prospect may turn out to be a commercial oil field. Linch will then be the twentieth oil bearing area in the State. The Commission had released the location for drilling in September 1971 and drilling at Linch had started on February 23, 1972.

Earlier this year, ONGC had made two new discoveries of oil and gas in Gujarat. Oil was struck on Feberuary 11, in a well drilled in the Dabka area. Six days later, on February 17, gas was struck in the first well in the North Balol area. The size of the oil and gas finds in the Dabka and the North Balol areas respectively and their commercial importance will be determined only after number of wells have been drilled there. However, according to the preliminary data, the oil find at Dabka particularly may be quite encouraging.

The Commission has so far taken up drilling of 163 geological structures, of which 70 are located in Gujarat.

ONGC is presently producing crude oil at the rate of 4 million tonnes per year. The total production of oil from the ONGC fields in 1970-71 was 3.64 million tonnes.

GLYCERINE PLANT TO BE COMMISSIONED

A process to extract glycerine from mutton tallow has been developed indigenously. Accordingly an industrial unit is proposed to be set up in Uttar Pradesh for producing glycerine from mutton tallow.

Glycerine content in the mutton tallow, at present is being wasted entirely as mutton tallow is given away to soap and non-soap manufacturers without extracting glycerine from it.

Glycerine has wide applications especially in the field of medicine and chemicals. Since the present availability of glycerine in the country is inadequate to meet domestic demand, it is necessary to save this valuable bye-product, keeping in view its medicinal and chemical uses.

A NEW DREDGER

The Rs. 400 million Mormugao Development Project took a major step forward this month with the laying of the keel for a large new dredger for the Port Trust in the Public Sector Mazagon Docks at Bombay.

This self-propelled twin-screw trailing suction hopper dredger with a hopper capacity of 2,500 cubic metres will be the largest dredger owned by the Port, and is expected to be delivered in early 1974 when the the Mormugao Port Development Project will be Commissioned. This project, which will deepen the harbour from about 30 feet draft at present to 45 feet, and accommodate vessels of over 60,000 dwt. size, will incidentally lead to additional siltation in the harbour. This large new dredger is meant to keep the harbour at the new depths by continuous maintenance dredging. The dredger is expected to cost about Rs. 46 million.

FISH MEAL PLANT OPENED

The Kerala Fisheries Corporation's marine fish meal plant at Azhikode, near Cochin has recently gone into production.

The Rs. 1.25 million plant is capable of producing 2.5 to 3 tonnes of fish meal per day out of trash fish and prawn fish now thrown away as waste by processing units. Fish meal is used as a fodder for cattle, and poultry. It has some scope in the export field also. Though in 1970-71 the export of fish meal was negligible, the country exported fish meal worth Rt. 1,21,870 in 1969-70. During the first three quarters of 1971-72 also, a limited quantity of fish meal valued at Rs. 33,075 has been exported to Nepal.

ELECTRIC AND DIESEL LOCOMOTIVES

A new era has begun in the field of locomotive production in India with switching over by Chittaranjan Locomotive Works (CLW) to the production of electric and diesel locomotives. The production of conventional steam locomotives has now been completely stopped in the country.

The CLW has turned out 2816 locos; inclusive of 2351 steam locos during the last two decades. Their gaugewise production was 1908 broad gauge main lines goods locomotives, 259 passenger traffic main line locomotives, 30 broad gauge tank locomotives for suberban and shuttle services, 94 broad gauge light passenger locomotives for branch lines and 60 metre gauge goods locomotives.

During June 1970, the CLW stopped production of broad gauge steam locomotives. Due to constant demand for electric and diesel locomotives, production of steam locomotives decreased whereas production of electric and diesel engines stepped up.

The other locomotive workshop, the Northern Locomotive Workshop at Amritsar, irrespeetive of its limited capacity of producing 450 wagons a year, has planned to turn out about 1000 units of four wheeler wagons during 1972-73, registering more than 100 per cent increase in production.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

PROCESS FOR DESTRUCTION OF AFLATOXIN

The Central Food Technological Research Institute, Mysore has developed a process for detoxification of aflatoxin contaminated groundnut products.

Groundnut products are often contaminated by a toxin known as aflatoxin. It is essential that groundnut meal or protein isolate made from groundunt meal is free of aflatoxin which is a serious public health hazard.

With the new process by the Mysore Institute, one can prepare aflatoxin free, deodoured groundnut meal or protein which has good dispersability in water and an attractive colour. The product can be used as a source of toxin free protein in any food formulation or for irect consumption. This is also used to raise the rotein content of a variety of foods like biscuits, eaning foods, icecream mixes etc.

The process involves suspension of groundnut meal n an alkaline medium, mixing it with a suitable xidising agent such as permanganate, hydrogen perxide, potassium chlorate etc. and heating the mixture uitably. The material is then cooled and excess xidising agent is removed. The product is then dried nd packed. The institute carried out the work on a ilot plant having a capacity of 300—500 litres of rotein liquor per batch.

The Institute has also used the process for producing vegetable toned milk on a pilot plant of 1000 litres capacity. The product was tested and found to conform to the permissible limit of 30 micrograms per kg. in respect of aflatoxin content as recommended by the Protein Advisory Group of WHO/UNICEF.

The main raw material required is groundunt meal. Besides, chemicals like oxidising agent, sulphuric acid, caustic soda, indicators enzyme catalase are also required. All these are available indigenously.

As the process will be an ancillary to an existing food industry, additional equipment needed would be stainless steel holding tanks, plate heat exchangers, temperature and PH measuring and controlling instruments, stirrers, pumps etc. All the items of equipment are indigenously available. The extra space required for housing this equipment will be of order of 400 sq. ft.

For a plant having a capacity of dextoxifying 10,00 —20,000 litres per day, the investment required is estimated at Rs. 100,000 assuming that facilities like boiler, chilled water supply etc. are already available with the entrepreneur. This estimate of investment also does not include the cost of extra space of about 400 sq. ft. which would be required adjacent to the existing factory.

SOLAR STILLS FOR QUALITY WATER

The Central Salt and Marine Chemicals Research Institute, Bhavnagar have developed a solar still for obtaining good quality water. Water to be distilled is placed in black bottom trays covered with inclined glass sheets to form an airtight enclosure. Solar energy heats water and the vapours formed condense over the underside of the glass. The condensate flows into channels provided for this purpose of forming the products.

The Institute had installed 10 stills with complete concrete construction and having total capacity of 1000 litres/day in their poilot plant constructed in 1965 in Institute's salt works. After satisfactory operation and collection of data over a period of three years, one still can now be demonstrated to the prospective entrepreneurs.

Solar stills developed by the laboratory do not require any major equipment except for a pump for feeding. Construction being of civil engineering type, all the materials of construction like concrete pipes, channels, plastics, glass etc. are available indigenously. Institute installed solar stills with complete concrete constructions at Navinar light house in 1968 (capacity 130 litres/day of water for drinking) and at Baroda in the same year (capacity 80 litres/day of distilled water).

The maximum capacity of individual plant is likely to be limited to about 22.5 m^3/day (5000 gallons/day) to meet good quality water. A standard unit of about 2.44 m x 1.22 m (8 ft. x 4 ft.) has a capacity of about 7 liters per day. Such units with slight changes can be placed anywhere on the terraces or ground with some masonary work. Institute has already supplied such units to interested parties. These units are functioning satisfactorily.

The process developed by the Bhavnagar Institute will provide outstation laboratories and highway petrol pumps with a simple and dependable device for supply of distilled good quality water.

NEW COTTONSEED VARIETY DEVELOPED

A new cottonseed variety known as Rs. 89 has been developed by the Government Research Farm in Ganganagar in Rajasthan.

The developed variety of cottonseed has been proved to be superior than the popular variety presently in use, known as 320 F. While 320 F variety has not yet crossed the counts beyond the figure of 35 the newly developed, Rs. 89 variety has been claimed to have produced cotton with 48 counts.

Some seeds of the developed variety have recently been released in a district in Rajasthan and it is expected that it will give good results.

ELECTRO-CHEMICAL PROCESSES DEVELOPED

The Central Electro-Chemical Research Institute, Karaikudi, has developed a number of electro-chemical processes during the last year for commercial exploitation. A few of these processes are :

Cadmium sulphide photoconductive cells

Cadmium sulphide cells have wide application in a variety of fields such as automatic street light control, alarms of various types, control of various dimensions, safety, device for optical product ejection, automatic switching of automobile headlights counters, exposure meters in photography, in measuring instruments and electronic engineering components. The know-how for the fabrication of cadmium sulphide photo-conductive cells has been developed by the institute. The essential elements of a cadmium sulphide photo-conductive cell are: (i) substrate, (ii) layer of photoconductive cadmium sulphide powder sintered together, (iii) electrodes (iv) protective moisture resistance sealand on the top of the layer, and (v) connecting leads soldered to the electrodes.

High purity grade of cadmium sulphide powder is sensitized, incorporating copper and chloride irons in required proportions and firing with a suitable flux under optimum conditions. The sensitized powder is sintered on an unglazed ceramic substrate to obtain adherent and photosensitive layers of cadmium sulphide. The technique developed is an improvement over existing techniques in that the preparation of the photosensitive cadmium sulphide powder is achieved by a simple method and sensitization is obtained with a single firing. The estimated demand for cadmium sulphide photocells is about 30,000 cells per annum, and is likely to go up. All the components of the cells are indigenous.

Hard chromium plating of piston rods for vacuum-brake Cylinders of Railways.

Another process developed relates to hard chrome plating of piston rods for vacuum brake cylinders of Railways. Hard chromium plating has been considered as substitute for stainless steel/phosphor-bronze. It is estimated that Railways employ 460,000 of rods on all the coaches and wagons throughout the country and the recurring annual requirement of the Railways appear to be around 30,000 per annum. The process developed will eliminate the use of imported stainless steel or phosphor bronze cast on sleeves for vacuum brake cylinder piston rods. The piston rods chrome plated as per the process has been found to conform to relevant specification fully.

Direct plating of copper on stainless steel

The conventional method of plating copper on stainless steel is to give a nickel strike from Wood's nickel bath followed by a copper plating from an acid copper sulphate bath. The Institute has developed a process for plating of copper directly on stainless steel using a lower copper strike bath followed by a copper build-up from conventional acid copper sulphate bath. As the direct plating eliminates the nickel coating between substrate and thick copper coating, the use of nickel anodes and nickel salts which are costly are eliminated. This technique of direct plating has been employed for coating stainless steel utensils. The plated products are found to conform o IS specifitions.

DEVELOPMENTS IN FERTILISER INDUSTRY

Over the years of planning, the fertiliser industry of India has witnessed notable developments. Considering that the production of nitrogen and P_2O_5 (Phosphorous Pentoxide) in 1960-61 was merely 1,12,000 tonnes and 52,440 tonnes respectively, the output achieved in 1971-72 at 950,000 tonnes of nitrogen and 293,000 tonnes of P_2O_5 indeed marks a step forward.

The installed capacity as at the beginning of 1972 was of the order of 1.46 million tonnes of nitrogen and 0.5 million tonnes of P_2O_5.

Starting from the production of ammonium sulphate and super phosphate, the range of manufacture in the line has been gradually diversified. Today, India produces most of the fertiliser varieties commonly in use - ammonium sulphate, urea, calcium, ammonium nitrate, ammonium sulphate nitrate (double salt), ammonium phosphate, nitro-phosphate and other complex fertilizers as well as NPK mixtures.

Among the public sector companies that are engaged in the fertiliser manufacture in the country, the Fertiliser Corporation of India (FCI) has at present 5 operating units and 7 units are under construction. The operating units are Sindri (Bihar), Nangal (Punjab), Trombay (Maharashtra), Gorakhpur (U. P.) and Namrup (Assam). The units under construction are Durgapur (West Bengal), Barauni (Bihar), Namrup Expansion (Assam), Ramagundam (Andhra Pradesh), Talcher (Orissa), Sindri Rationalisation (Bihar) and Trombay Expansion (Maharashtra). During the year 1971-72, three new projects, Haldia (West Bengal), Korba (M. P.) and Gorakhpur Expansion (U. P.) have also been entrusted to FCI for execution. In addition, a scheme to expand the Nangal Fertilizer Factory and a scheme for modernisation of Sindri Fertiliser Factory are under consideration.

The cumulative production of nitrogen by the operating units of FCI during the first 11 months of 1971-72 (April'71 - February'72) was 273,000 tonnes. This by itself constitutes a major portion of the country's total production.

Another public sector undertaking, M/s. Fertilisers and Chemicals Travancore Limited (Alwaye) Kerala, has a running unit at Udyogamandal (Alwaye) and another at Cochin. The third undertaking, M/s. Madras Fertilisers Limited has already established a fertiliser plant for the manufacture of ammonia, urea and complex fertilisers. Regular production of this undertaking has commenced in November, 1971 and actual production till February, 1972 was of the order of 68,371 tonnes of urea and 48,637 tonnes of NPK complex fertiliser.

Yet another project, M/s. Pyrites, Phosphates and Chemicals Limited, is engaged in exploitation of pyrite deposits in the country to manufacture sulphur, sulphuric acid, etc.

Reverting back to the FCI, the first 11 months of 1971-72 recorded production of nitrogen at 67,500 tonnes at Sindri, 59,000 tonnes at Trombay, 26,700 tonnes at Namrup, 68,500 tonnes at Gorkhpur and 51,600 tonnes at Nangal units. Additionally, at Trombay unit the production during this period was 30,200 tonnes of $P_2 O_5$ and 21,600 tonnes of $K_2 O$. Thus the total nutrients produced by the FCI units in the period was 3,25,100 tonnes, as against 2,96,900 tonnes in the same period of 1970-71.

Under the organisation of FCI, there are some schemes of expansion/construction. At Durgapur, for instance, a project designed to produce nitrogen and urea is under construction. An expansion project at Namrup is also designed to produce these items. The Sindri Rationalisation Scheme intended to change the production pattern is presently aiming at the installation of sulphur burning equipment at its Sulphuric Acid Plant in addition to Pyrites Burning arrangements to provide for flexibility operation. When completed, this project will give an additional 1,56,000 tonnes of P_2O_5 per annum. This project will also make available gypsum as a by-product from its Phosphoric Acid Plant. The work on the project is expected to be completed by April, 1974.

In the chain of projects under construction, the Trombay Expansion Scheme will have a capacity to produce 5,89,000 tonnes of nitro-phosphate per year. In terms of nutrients, it will produce 1,23,700 tonnes of nitrogen and 1,23,700 tonnes of P_2O_5. Projects at

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Ramagundam and Talcher are designed to produce 495,000 tonnes of urea and 228,000 tonnes of nitrogen per annum.

Further to the projects under construction, Government have approved the establishment of a fertiliser complex at Haldia for the production of urea (165,000 tonnes per year), nitro-phosphate (379,000 tonnes per year), Soda ash (60,000 tonnes per year) and methano (41,250 tonnes per year). Also at Korba, Gorakhpur and Nangal, further expansion schemes are under consideration.

Besides the projects in the public sector, a number of units in the private sector are also in operation. The units at Kota, Baroda and Coromandal have obtained optimum or near optimum levels of production. Additionally, fertiliser plants are operating at Rourkela and Neyveli as units of Hindustan Steel Limited and Neyveli Lignite Corporation respectively.

Under the auspices of FACT, there is an operating unit at Alwaye, as already stated. The Company is also executing the fourth stage expansion project at Alwaye and the first two phases of the Fertiliser Project at Cochin. The Udyogamandal Unit at Alwaye has a capacity of 82,000 tonnes of nitrogen and 33,500 tonnes of P_2O_5 per annum, the end-products being ammonium sulphate, ammonium phosphate, ammonium chloride and super phosphate. On completion of the IV stage expansion, Udyogamandal (Alwaye) unit will have a capacity of 82,000 tonnes of nitrogen and 43,500 tonnes of P_2O_5. The Cochin Fertiliser Project Phase I will have a capacity of 152,000 tonnes of nitrogen in the form of urea, while the Phase II of the Project envisages production of 485,000 tonnes of NPK fertilisers and 7500 tonnes of Cryolite per annum.

The Pyrites, Phosphates and Chemicals Ltd. mentioned above is presently implementing three projects viz. the Mining Project at Amjhore, the Pyrites Mining Exploration Project at Saladipura and the Phosphorite Exploratory Mining Project, Maldeota.

To sum up, the Fertiliser projects in production in the public sector have a total capacity of 824,000 tonnes and those in the private sector 640,000 tonnes in terms of nitrogen, thus taking the total capacity of the country as a whole to 14,64,000 tonnes.

The projects under implementation envisage further production of 14,56,000 tonnes both in the public and private sectors. The projects approved are expected to add 14,60,000 tonnes in terms of nitrogen both in the public and private sectors.

The installed capacity in terms of P_2O_5 is 500,000 tonnes for both public and private sector units that are now in production. The projects under implementation envisage production of 9,43,000 tonnes of P_2O_5. Additionally, the projects approved for P_2O_5 envisage a further production of 544,000 tonnes.

After completion of the projects India's fertiliser capacity in terms of Nitrogen will be 43,80,000 tonnes and in terms of P_2O_5, it will be 14,87,000 tonnes. ☐

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TRANSISTORS AND INTEGRATED CIRCUITS FOR EXPORT

The electronics industry in India has come to be established. Year after year, sizeable improvements in the output of electronic equipment are recorded and new lines of manufacture added. In 1971, production growth was evident in most of the electric sectors. The production of radio receivers rose to 1.97 million numbers from 1.77 million numbers in 1970; T.V. receivers were 7790 numbers against 5128 numbers; record players were 69090 numbers against 48520 numbers. In practically all types of electronic components also, there has been a substantial increase in production as compared to 1970. Production of transistors and diodes for instance, improved from 20.78 million numbers in 1970 to 35.20 million numbers in 1971, receiving valves from 5.0 million numbers to 6.1 million numbers etc.

Recently an order has been bagged by an Indian firm from the highly competitive market of Hong Kong for the supply of 10 million epoxy transistors. The firm which secured the order, M/s. Hindustan Conductors Private Limited, Calcutta have undertaken the export of one million integrated circuits per month to U.S.A. They have also a number of enquiries from advanced countries of Europe as well as U.S.A. for the supply of semi-conductors of devices.

The company's product line includes a wide range of semi-conductor devices such as transistors, diodes and integrated circuits as well as polished wafers, epitaxial wafers and diffused wafers. Their facilities in wafer fabrication area consist of crystal cutting, lapping and polishing, epitaxial reactor 50 KW, 16 diffusion furnaces, photolithography, vacuum evaporation and wafer prober.

EXPORT OF ENGINEERING EQUIPMENT

The Projects and Equipment Corporation, New Delhi, a subsidiary of the State Trading Corporation of India has succeeded in improving its engineering equipment exports to Rs. 160 million during 1971-72 as against Rs. 87.4 million in the preceding year.

Set up with the objective of providing boost to the export of engineering equipment including railway equipment, the Corporation has also entered into the field of turnkey projects abroad.

During 1971-72, the Corporation supplied 655 railway wagons to Hungary, 49 tank wagons to East Africa and 120 wagons to Sudan. They have broken new ground by securing contracts for supply of bicycles to the U.S.A., garage equipment to the U.S.S.R., tyres and tubes to North Korea etc.

The Corporation expects to secure orders for passenger coaches from Nigeria, for wagons from Poland as also for power supply equipment and transmission towers, diesel engines and drilling rigs, automobile ancillaries and textile machinery. They are also hopeful of winning over turnkey assignments like installation of signalling system in Syria, railway project in Iraq etc.

They have now on hand export contracts worth Rs. 510 million for railway rolling stock and equipment and Rs. 100 million for engineering products.

EXPORT EFFORT OF GUJARAT CORPORATION

Set up for the purpose of fostering the export trade of Gujarat State, M/s. Gujarat Export Corporation Limited has, since its inception in 1965, secured an export business of Rs. 16.22 million. The two major items of the Corporation's export have been diesel engines and machine tools. They have exceeded the the export target of Rs. 6 million last year by attaining a figure of Rs. 6.3 million. Orders worth another Rs. 6.3 million are pending on their register.

The Corporation's machine tools have been exported to sophisticated markets like Federal Republic of Germany, U.K., Netherlands, Australia, New Zealand etc. and to developing countries like Thailand, Ceylon, Malaysia, Mauritius, Kenya and Uganda.

The Corporation deals with a wide range of other export products from handicrafts to industrial machinery. In the array of products that they have succeeded in exporting are diesel engines and spares, electric motors, valves, machine tools like lathes, drilling machines, grinders wire drawing machinery, barbed wire machinery, textile machinery, electrical accessories, coaltar dyes, washers, pickers, sunkheda furniture, etc.

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EXPORT PERFORMANCE OF AIR COMPRESSORS

Air compressors were exported by the Indian industry to the tune of Rs. 9.43 million during 1970-71. Arab Republic of Egypt and Greece were the major buyers. Australia, Canada, Hong Kong, Iran, Italy, Nigeria, Sudan and U.K. were among the other important purchasers. In the first ten months of 1971-72 (April 71–January 72), export earnings of this product stood at Rs. 2.45 million with Nigeria, Philippines and the Arab Republic of Egypt as the principal importers. With three units in the line, the production of sealed compressors increased to 32,200 numbers in 1971 from 26,800 numbers in 1970.

M/s. Atlas Copco, Poona was among the first firms to have secured an export order for portable diesel air compressors from Turkey. During the first five years of its export trade, the company has exported its products particularly compressors worth Rs. 20 million. Another export order from Turkey was secured by the firm for the supply of hand held rock drills.

The company's product that has caught the imagination of the engineering world is the screw compressor which calls for high precision in manufacture. The firm was perhaps the first in the world to market portable screw compressors and among the leading manufacturers of the portable dry screw compressors giving oil-free air.

Aside from the portable and stationary air compressors, the company manufactures rock drills, rock oil fans, rock drilling accessories and hose fittings. Presently they are manufacturing, 450 air compressors, 3600 rock drills and 780 rock drills feet per annum.

EXPORT TRADE IN ILMENITE

Ilmenite exports from India in 1970-71 amounted to Rs. 1.84 million (28,394 tonnes). In the first ten months of 1971-72 (April 1971-January 1972), the export value was of the order of Rs. 10.34 million (44,201 tonnes).

U.S.A. has been the major importer followed by Japan. Belgium, the U.K., Sweden and Italy also import some quantities of this product.

M/s. Dhrangadhra Chemical Works Ltd., Nirmal, 241, Backbay Reclamation, Nariman Point, Bombay succeeded in exporting ilmenite ore worth Rs. 9.4 million during 1971-72. In fact, the company which had successfully introduced this new product in the world market in recent years expects to earn over Rs. 12.5 million per annum on a recurring basis. They have already bagged orders of about 31,000 tonnes of upgraded ilmenite ore valued at Rs. 16 million in the year 1971-72.

The beach sands of Tamil Nadu and Kerala contain large resources of ilmenite which are estimated to be around 110 million tonnes. The present installed capacity of processing plants is sufficient to cater to the internal demand from the pigment industry as also the export demand for beneficiated ilmenite.

UPTREND IN EXPORTS OF MEDICINAL AND PHARMACEUTICAL PRODUCTS

Indian exports of medicinal and pharmaceutical products including insecticides during 1970-71 amounted to more than Rs. 89.00 million as against Rs. 65.80 million in the previous year. During the first ten months (April 71-January 72) of the year 1971-72, these exports were of the order of Rs. 72.70 million.

During the year 1971, one single manufacturer, M/s. Bayer (India) Ltd., Kolshet Road, Thana, Bombay, succeeded in exporting their products worth Rs. 0.70 million. In the previous year the firm earned nearly Rs. 0.43 million in foreign exchange.

The range of products manufactured by the Bombay firm includes insecticides, fungicides, weedicides and other chemicals for plant protection purposes, rubber chemicals and pharmaceuticals and domestic and public health products.

On the expansion front, the firm succeeded in getting a letter of intent last year for the production of Toluene Di-isocyanate, the basic material required for the manufacture of polyurethane foam.

EXPORT ORDER FOR COTTON CLOTH

India's export trade in cotton manufactures (excluding yarn, thread and cloth) was of the order of Rs. 818.90 million in the first ten months of 1971-72 which was more or less at the same level as in the corresponding period of the preceding year.

M/s. National Textile Corporation Limited, New Delhi have succeeded in securing export orders for about Rs. 45 million. Besides, they have offered 16.5 million metres of cloth valued at Rs. 33 million for export to the Soviet Union. The export performance of the Corporation is particularly creditable because it has taken over under its charge the management of sick cotton mills. The mills have an installed capacity of 1.8 million spindles and 31,000 looms constituting about 10 per cent of the total spindlage and 15 per cent of the total loomage in the cotton industry as a whole. The mills managed by the Corporation produce nearly 94.3 million square metres of controlled cloth.

WELDED WIRE FABRICS ENTER EXPORT MARKET

Suitable for the reinforcement of cement concrete, the welded wire fabrics made in India have now made a firm entry into the international markets. Already a variety of wire products including wire cloth and wire mesh, wire fencing, wire gauze and netting etc. of iron and steel are exported every year in sizeable quantities. The wire cloth and wire mesh of iron and steel, for instance, was supplied to Saudi Arabia, Turkey, Kuwait, Kenya, Muscat and Dubai during 1971-72.

Expected to save a substantial sum of foreign exchange by way of import substitution the manufacture of welded wire fabrics in India has spared good quantity for export supplies too. M/s. Multi-Weld Wire Company Private Limited, Bombay have already earned about Rs. 4 million through their export of the product to several markets far and near. The firm is hopeful of raising its export effort to the level of Rs. 10 million per year soon.

PAPER EXPORTS UP

Paper and paper board and printing and writing paper in rolled sheets were exported to the tune of Rs. 39.37 million during 1970-71. The art paper uncoated, printing paper, account book paper, writing paper, drawing paper, craft paper and craft paper board, cigarette paper, machine made papers, fibre boards and others, handmade papers, paper and paper boards etc. were the main items of exports.

The major importing countries were Iran, Afghanistan, Burma, Indonesia, Singapore, Hong Kong Iraq, Nepal, ARE, Tanzania Republic, Malaysia, Bahrein Island, Kenya, Zambia, Nigeria etc.

During the first 10 months of 1971-72 (April 1971 to January 1972), exports of these items fetched Rs. 12.33 million (520 tonnes).

M/s. Ballarpur Paper and Straw Board Mills Limited, New Delhi, succeeded in securing export orders about Rs. 10 million, touching an all time high figure in their history of exports.

The firm has received an award from the Chemicals and Allied Products Export Promotion Council, Calcutta for their outstanding export performance during the year.

The present installed capacity of paper and papers boards stands at 8,80,000 tonnes per year and the actual production is about 7,60,000 tonnes. The entire domestic requirement of common grades of writing, printing, wrapping, packing paper and paper boards is met indigenously. A few items of specialised papers are only imported.

Nearly 60 per cent of total production (4,45,000 tonnes) of the paper manufactured is for printing and writing purposes while 21 per cent is for packaging and wrapping, 17 per cent for paper boards and the rest for special varieties.

STAINLESS STEEL UTENSILS ON EXPORT FRONT

Entry of Indian manufactures in the sophisticated overseas markets makes it evident that the Indian export items are at par with the items fabricated by the most advanced countries of the world.

Exports of stainless steel utensils from India during 1970-71 were of the order of Rs. 4.16 million. The major importing countries were U. K., Singapore, Zambia, Malaysia, Kenya, Tanzania Republic and Uganda.

During the first ten months of 1971-72 (April 1971-January 1972), exports of these items fetched Rs. 3.15 million.. U. K. emerged as the biggest importer with an intake value of Rs. 0.68 million, followed by Zambia at Rs. 0.43 million, Singapore Rs. 0.37 million and Malaysia Rs. 0 29 million.

Recently M/s. Amalgamated Universal Agencies (P) Ltd., 306, Lotus House, 33-A, New Marine Lines, Bombay-1 have succeeded in securing a contract from the United Kingdom for suppply of stainless steel utensils worth Rs. 180,000. Simultaneously, the firm have secured another order for exporting stainless steel utensils and cutlery worth Rs. 1.7 million to West Germany.

The firm is also striving hard to develop a market for geological specimen from India. The countries which have already made purchases are U.S.A., France, West Germany, Australia, Austria, Netherlands, Switzerland and Italy.

EXPORT PERFORMANCE AND POTENTIAL

RECENT TRENDS IN INDIA'S EXPORT PERFORMANCE

Export earnings in 1971-72 totalled Rs. 15,670 million in 1971-72 as against Rs. 15,350 million in the previous year. The growth rate of exports in 1971-72 was 2 per cent, while it was 4.5 per cent in the first year of the Fourth Plan i.e. 1969-70 and 8.5 per cent in the second year. For the first three years of the plan, therefore, the growth rate works out to be about 5 per cent.

The export figures since 1967-68 are : Rs. 11,990 million (1967-68); Rs. 13,580 million (1968-69); Rs. 14,470 million (1969-70); Rs. 15,354 million (1970-71) and Rs. 15,670 million (1971-72).

In the first two months of 1972-73, (April and May 1972) exports totalled Rs. 3100 million which recorded an improvement of Rs. 570 million over the corresponding period of the previous years. Imports in these two months amounted to Rs. 2715 million showing a decline of nearly Rs. 270 million over the same period in 1971. Consequent on the increase in export and the decline in imports, India's trade balance has turned into a surplus of Rs. 387 million in these two months against a deficit of Rs. 456 million during the corresponding period of last year.

The items which showed an increase in exports compared with the preceding year were jute manufactures, handicrafts, cashew kernels, unmanufactured tobacco and tobacco manufactures, marine products, cotton apparel. leather and leather manufactures, art silk fabrics etc. The principal products for which the export declined in the year were iron ore, iron and steel, ferro-manganese, ferro-alloys, oil-cakes, coffee, cotton yarn, mineral fuel and manganese ore.

Exports in 1971-72 had to face several adverse factors such as the world monetary crisis, tariff and non-tarriff barriers in rich countries like the U.S.A. and the U.K., dislocation owing to Indo-Pak hostilities and fall in steel production and its availability for engineering industries. The growth of world trade in the year has also been sluggish in general. Export of even developed countries has grown at much slower pace than in earlier years.

Several steps are being taken to make up the shortfall in the growth rate of exports. Commodity-wise and countrywise profiles are being prepared and good amount of working has gone into developing trade possibilities with socialist countries, developing countries and the GSP (Generalised Scheme of Preferences) areas. The working of the public sector undertakings under the Foreign Trade Ministry is also being streamlined with a view to securing higher exports from them.

Government are appropriately modifying its policies to achieve higher unit values for specific products. Major decisions in regard to the take-over of exports of textiles, coir and mica have been taken and structural changes are being made in the trade policies in general to secure a higher level of exports.

UPTREND IN EXPORTS OF COSMETICS AND TOILET PREPARATIONS

Indian cosmetics and toilet preparations are getting wide popularity in the overseas markets. Even during the first ten months of 1971-72, the export value registered substantial rise over that of 1970-71. During 1970-71, the export fetched Rs. 23.72 million, while in the period April '71–January '72, this was as much as Rs. 27.66 million.

The variety of products exported in the line includes brilliantines, face cream, hair cream, shaving cream, hair oil, hair shampoos, face powder, talcum powder, tooth powder, toilet powder, tooth paste, spirituous toilet preparations, cosmetic preparations, cosmetic toilet preparations, agarbattis, perfumes not containing spirit, Eau De Cologne, perfumes containing spirit etc.

Agarbattis constitute the main item of export having fetched Rs. 12.75 million in 1970-71. The major importing countries in that year were USA (Rs. 4.3 million), Ethiopia (Rs. 1.55 million), Singapore (Rs. 1.08 million), followed by Nepal, Kenya, German Democratic Republic, France and Fiji etc.

Hair oil is exported normally to Tanzania, Singapore, Qatar and Malaysia, while Arab Republic of Egypt happens to be the principal buyer of face powder. In fact in 1970-71, ARE imported Rs. 1.57 million worth of this product, out of its total export value of Rs. 2.33 million. Talcum powder buyers include Malaysia, Japan and Singapore. Perfume material (containing or not contain ing spirit) is mainly supplied to Saudi Arabia, South Yemen People's Republic and Sudan.

In the first ten months of 1971-72, agarbattis netted foreign exchange worth Rs. 11.68 million, the major importing country being USA. This country's intake was Rs. 3.38 million, followed by Ethiopia at Rs. 1.01 million. Australia, Canada, France, Federal Republic of Germany, Kenya, Malaysia and Nepal were the other important destinations. During this period, hair oils fetched Rs. 1.68 million, face powder Rs. 1.33 million and talcum powder Rs. 1.28 million.

EXPORT OF BATTERIES UP

The export value of batteries, both dry and storage, is estimated to have gone upto Rs. 25 million in 1971-72 from Rs. 21.70 million in 1970-71. Of this, while the share of dry batteries is estimated at Rs. 12 million as against Rs. 11.50 million in 1970-71, that of storage batteries increased to Rs. 13 million from Rs. 10 20 million in 1970-71.

Sudan was the major buyer for dry cell batteries, followed by Nepal, Malaysia, South Yemen Republic, Thailand, West Germany, U.S.S.R., and Yugoslavia. The other buyers included Italy, Ceylon, Ethiopia, Kuwait, Zambia etc. U.S.S.R., U. K. and Kuwait were the major destinations for storage batteries. The other importing countries included West Germany, Iraq, Kuwait, Ghana, Abu Dhabi, Burma and Qatar.

Alongwith export, the production of dry battery cells increased to 569.9 million pieces in 1971 as against 492.1 million pieces in 1970. This is significant considering that in 1965, the production was only 300 million numbers.

Currently, there are 7 units in the line with an installed capacity of 539 million numbers as against 6 units with an installed capacity of 479 million numbers in the previous year. The demand for dry batteries has been placed at 1150 million numbers by the end of Fourth Plan (1973-74). To increase production, letters of intent for a total capacity of 470 million numbers are at various stages of implementation.

The range of dry cell batteries produced includes flash lights, telecommunication, signalling and general purposes as also radio batteries.

The production of storage batteries has risen to more than 1.15 million numbers in 1970 and 1971 from just 0.75 million numbers in 1965. The increase in production value was much more significant as both during 1970 and 1971, the production was mainly in large sizes of batteries.

Various types of storage batteries are now being manufactured in the country ranging from motor cycle batteries and automobile batteries to heavy duty batteries. The industry is meeting almost the full requirement of defence, railways and post and telegraph departments in the country. Recently letters of intent to new units and expansion to the existing units have also been issued to cater to the growing demand.

INDIAN PRECIOUS STONES IMPROVE OVERSEAS SUPPLY

During the first ten months of 1971-72, the export earning of pearls, precious and semi-precious stones was more than that earned in the entire preceding year of 1970-71. This is a clear reflection of the uptrend in overseas demand of these Indian products. Whereas the full year of 1970-71 fetched Rs. 418.79 million, the first ten months of 1971-72 recorded an export level of Rs. 422.28 million.

Diamonds (other than industrial) either in the cut or uncut form earned Rs. 282.56 million in 1970-71 while in the first ten months of the following year they netted Rs. 296.63 million. The category of pearls, either worked, unworked or cultured, witnessed a clear uptrend in export earnings from Rs. 10.26 million to Rs. 13.16 million in the periods compared.

Other precious or semi-precious stones including uncut emeralds, uncut felspars and other natural precious and semi-precious stones maintained their export earnings at Rs. 110 million (which registered a marginal shortfall as compared to the previous year).

In respect of pearls the major importers are U.S.A., Hong Kong, and Qatar. In case of diamonds (cut), Belgium imported worth Rs. 102.30 million in 1970-71 while in the first ten months of the following year its imports were Rs. 84.84 million. Hong Kong too absorbed less - from Rs. 76.52 million to Rs. 65.76 million but these reduced purchases were more than compensated by the increased offtake of Japan which imported as much as Rs. 22.75 million in the first ten months of 1971-72 as against Rs 15.19 million in 1970-71; Netherlands (Rs. 21.99 million against Rs. 10.87 million), Singapore (Rs. 11 32 million against Rs. 9.96 million) and U.S.A. (Rs. 45.57 million against Rs. 28.86 million). Likewise in respect of uncut diamonds too there was an increased supply to the U.S.A. and Belgium.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

BALL AND ROLLER BEARINGS INDUSTRY

Ball and roller bearings industry is an important feeder industry involving a high degree of precision and skilled operations. Ball bearings are used for a number of industries manufacturing such items as electric fans, electric motors, power driven pumps, electric automobiles, railway wagons, textile machinery, tractors, earth moving machinery etc.

The industry has made notable progress in India during the last two decades. In 1951 the production was nearly 0.23 million numbers against installed capacity of 0.60 million numbers per annum. In 1966 the installed capacity reached a level of 11.58 million numbers with actual production of 9.24 million numbers. The installed capacity and production increased to 12.14 and 10.07 million numbers in 1967; 12.74 and 12.19 million pieces in 1968 and 17.24 and 13.41 million pieces in 1969. With 7 units in the line, the installed capacity and production in 1970 was of the order of 15.89 and 17.50 million numbers. Though there was no addition to the units in the line in 1971, the installed capacity reached a level of 18.91 million numbers. The actual production during the year was 19 million numbers, registering more than cent per cent capacity utilisation. The annual compound growth rate between 1951 and 1971 has been 18.8 per cent in respect of capacity and 24.7 per cent in respect of production.

Consequent on the decision of the Government to do away with the banned list of industries, some applications which were received during 1971 for setting up new units and for substantial expansion have been recommended for licensing. Some of the existing units who applied for permission to increase their production by maximum utilisation of the installed plant and machinery have also been granted permission to do so on the merits of each case.

The anticipated production of the organised sector for 1973-74 has been placed at 21 million numbers, against an estimated demand of about 25 million numbers by that year.

With increase in production, the industry has continued to diversify its range of products. During 1971, about 30 new sizes and types of bearings were added to the production range of the different bearing manufacturers and the total of the types and sizes produced was 484 numbers.

The industry is nearly capable of meeting the country's requirements of electric fans and electric motor industry, automobile and tractor industry. The industry is also partly meeting the requirements of machine and ship-building industries. The requirements of the Indian Railways, particularly of the axle box bearings are also substantially met by indigenous supply. However, the manufacture of some special types of bearings like those required in aircrafts and rockets as also those needed by the metallurgical and paper industry has not yet started in the country.

The principal raw materials required in this industry are high carbon chromium steel tubes and bars, wires and cold rolled steel strips. In addition, consumable stores like grinding wheels, honinig stones, heat treatment salts, retorts etc. are also required.

During the year 1971-72, the indigenous availability position of the H.C.C. steel bars and wires improved considerably with the result that import of these bars was allowed only to the extent of 20 per cent of the requirements and import of wires was totally banned. However, H.C.C. seamless tubes and cold rolled strips are procured through import. Lately one of the units licensed to manufacture rolled rings has come into production. This is expected to help substitution of the imported tubes to some extent.

With increasing production, the industry has achieved appreciable improvement in the export field also. The export value of ball and needle roller bearings increased to Rs. 1.67 million in 1970-71 from Rs. 0.64 million in 1969-70. For the first three quarters (April-December) of 1971-72 the exports are estimated at about Rs. 0.87 million.

CINE ARC CARBONS AND MIDGET ELECTRODES PLANT TO BE COMMISSIONED

A Rs. 5.5 million Cine Arc Carbon plant is to be set up at Halol in Gujarat State.

The annual production capacity of the plant has been estimated at 3 million pairs of cine arc carbons and 80 million pieces of dry battery midget electrodes. The country's total requirements of cine arc carbons has been of the order of about 12.12 million pairs. The total production of arc carbons during 1972-73 has been estimated at about 10 million pairs.

The plant is expected to commence production by April 1973. The production in that year is estimated to be about 2.5 million pairs of cine arc carbons but by the end of 1974-75 it would reach a level of 3 million pairs. Initially the production of dry battery midgets electrodes will be about one fourth of the installed capacity. Full capacity utilisation will be achieved by the end of 1974.

NEW HOTEL PROJECTS FOR DEVELOPMENT OF TOURISM

As compared to Rs. 1.05 million profit earned by the India Tourism Development Corporation (ITDC) during the year 1969-70, the profits during 1970-71 were at Rs. 3.71 million, registering an increase of over 200 per cent.

A number of hotels such as, Hotel Ashoka, Hotel Janpath, Hotel Ranjit and many others are operating under the auspices of ITDC. Recently 2 new hotels have come up, one at New Delhi and the other at Bombay. These are; Akbar Hotel at Chanakyapuri, New Delhi and Hotel Ashoka at Bangalore. The Akbar Hotel building was taken on lease from the New Delhi Municipal Committee (NDMC). This hotel was commissioned in January 1972 and the Hotel Ashoka at Bangalore was commissioned in May 1971. Besides, the Corporation has started construction of a 100 room hotel and 40 beach cottage at Kovalam in Kerala. The total cost of both these hotels has been estimated at Rs. 13.5 million. The Corporation also plans to construct a 100 room transist hotel at Calcutta air port and a 60 room hotel at Gulmarg in Jammu and Kashmir State at a cost of Rs. 12 million and Rs. 11 million respectively. In addition to this, a 50 room hotel at Jammu at a cost of Rs. 2 5 million is also under construction. Yet another Rs. 3.9 million motel cum tourist centre project at Varanasi is also in progress.

There are at present 183 approved hotels in India and their existing capacity of rooms is 9945. After completion of 70 fresh hotel projects in the country, the existing room capacity of the hotel industry would increase by 7675 and the total capacity of rooms would be 17,622.

At present the bed capacity of the prominent hotels operating under ITDC is : Ashoka Hotel 650 beds, Janpath Hotel 290 beds, and Ranjit hotel 222 beds.

Besides the ITDC, M/s. Air India too have entered the hotel industry. They plan to construct a 350 room five star beach hotel at Juhu and a 50 room transit hotel at Santacruz Airport, Bombay. Further 10 youth hotels at focal points of tourist interest such as Trivandrum, Bhopal and Jaipur are also proposed to be constructed.

During 1971, about 301,000 tourists arrived in India as against 231,000 in the preceding year.

During the year, tourist transport services were extended to important places of tourist interests. The earnings from transport services were Rs. 4 million in 1971 as against Rs. 2.72 million in 1970. Besides, introduction of Boeing 747 on some of Air India's International services was the significant development in the country's tourism trade. Already 2 Jumbo aircrafts are in operation and two more are expected to be on air soon.

The duty free shops, installed at the four International Airports at Bombay, Delhi, Calcutta and Madras have earned foreign exchange to the tune of Rs. 2.26 million through their total sales turnover.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

DEVELOPMENT OF MICRO RADAR

Recent years have witnessed notable progress in production and diversification of electronic items in India. Bharat Electronics Ltd. (BEL), Bangalore, a public sector undertaking, has contributed significantly to this progress.

BEL is now contemplating the development of a micro-miniaturised X band radar which will be the heart of future radar systems. It also envisages to develop a complete range of HF, VHF and UHF communication equipment incorporating modern techniques.

BEL has been able to develop a number of new types of receiving valves, silicon semi-conductor devices, mica capacitors, cathode-ray tubes, X-ray and transmitting tubes. The picture tubes and some of the electronics valves manufactured by BEL have made it possible to reduce the foreign exchange content of Indian TV receiver from Rs. 260 to Rs. 90 in 1971.

The Bangalore undertaking has also developed and started production of two types of germanium medium-power transistors, a general purpose switching diode and a photo-transistor.

INDUSTRIAL T.V. DEVELOPED

A medical/industrial television has been developed indigenously by the Central Scientific Instruments Organisation (CSIO), Chandigarh.

The developed television has wide applications in Industrial as well as in medical field.

It is suitable for monitoring electro-cardio-gram temperature, pulse, respiration and blood pressure wave forms of patients during and after operations and for simultaneous clinical observations of various parameters such as faulty heart beats of many patients.

In the industrial field, it is used for multi-channel display of flow, pressure, vibration and turbulance in conjunction with suitable transducers.

AN AUTOMATIC REEL TYPE CUTTING TABLE DEVELOPED

An automatic reel type cutting table, used in the manufacture of wire cut bricks has been developed by the Central Building Research Institute, Roorkee.

The automatic cutting table comprises a chassis which provides the base for a reel assembly with clay column. The reel assembly has three sets of cutting wires fixed at 120° each to cut the clay column into bricks in a rotating action. A measuring belt which is moved by the pressure of the clay column, transmits the liner velocity of the clay column to a real reciprocating mechanism. The cutting table is suitable for production ranges up to 6000 bricks per hour. The table consists of 4 sub-assemblies viz. reel rotating mechanism, reel reciprocating mechanisms, reel and measuring belt. The reel rotating and reel reciprocating mechanisms have been provided with independent drives.

All the raw materials required for manufacturing of cutting table are available indigenously. They are mild steel structural elements, high carbon steel components, gun metal bushes, cast iron castings, standard ball bearings, brake lining etc.

The Institute has also developed a brick making machine giving an output of 3000 bricks per hour.

PROCESS FOR 3-AMINO-P-CRESOL

A technique to prepare 3-amino-P-cresol has been investigated by the Central Electrochemical Research Institute, Karaikudi (Tamil Nadu).

3-Amino-P-Cresol is mostly used as a starting material for the manufacture of optical whiteners. It is also used as a dye intermediate.

The technique developed by the CERI to prepare 3-amino-P-cresol is advantageous by way of electrolytic reduction of 3- nitro-p-cresol using rotating electrode. The reduction can be carried out with good current efficiencies even at high current densities. The important feature of the technique consists in reducing 3-nitro-p-cresol as a suspension in dilute sulphuric acid medium using rotating copper cathode at high current densities. This procedure improves the current efficiency in cells with high current densities. The electrochemical method has the specific advantage of facilitating (i) easy reduction (ii) a higher efficiency and (iii) easier product isolation.

India's total requirement of 3-amino-P-cresol has been estimated at 30 tonnes per annum. The cent per cent requirement at present is met through imports only. The conventional method of preparing 3 amino-P-cresol involves chemical education of 3-nitro-P-cresol with iron dust and hydrochloric acid. However, in this method the product isolation is not easy and efficiency of reduction is also less as compared to electrolytic reduction.

HIGH SPEED BICYCLE GEAR DEVELOPED

A new high speed attachment to increase the speed of bicycle has been developed by the Regional Research Laboratory, Jorhat.

The speed of bicycle by the new developed gear can be nearly doubled without any extra effort to about 20 to 30 kilometres an hour from the normal speed of about 10 to 15 kilometres per hour.

The attachment is moumted inside a hub which can be mounted directly on the axle of the back wheel without any modification of frame. The device can also be used in the existing bicycles by replacement of the normal hub by this device and use of shorter spokes in place of the usual spokes.

For smooth riding, the device developed by the RRL provides for one clutch by the high speed gear can be disengaged exclusively, causing the bicycle to move like an ordinary bicycle with normal effort. As the speed is picked up, the high speed gear can be engaged causing the bicycle to move at faster speed without much increase in the effort. The engagement and disengagement operations are manual.

The attachment can be made as separate units or can be manufactured by the existing bicycle manufacturers adding one or two machine tools.

Raw materials required for the fabrification of the attachment can be procured indigenously. The capital cost for a plant capable of producing 50 attachments per day is estimated at Rs. 9,75,000.

The design for the device is available with the National Research Development Corporation of India.

PARAFFIN WAX FROM SPENT FULLER EARTH

The Regional Research Laboratory, Jorhat, has developed a process for the recovery of paraffin wax from spent fullers earth.

The process consists basically of extracting the spent earth with a suitable solvent. The paraffin wax goes into solution from which paraffin wax and solvent can be recovered.

Paraffin wax is in great demand in paper, textile, cosmetic, pharmaceutical and other industries. Assam Oil Company, Digboi is the only source of fully refined paraffin wax. The total production of the paraffin wax by the Assam Oil Company is about 35,000 tonnes per annum which is not sufficient to meet the internal demand.

It is estimated that about 1,000 tonnes per annum of spent earth containing paraffin wax is available from Assam Oil Company, Digboi. The other raw materials like the solvent etc. are available in the country. The development of this process will enable the industry to recover a valuable product from the waste which is being thrown away.

The plant and equipment needed for the above process can easily be fabricated indigenously.

POTASSIUM ETHYL XANTHATE AND POTASSIUM AMYL XANTHATE

A process for the manufacture of Potassium Ethyl Xanthate (PEX) and Potassium Amyl Xanthate (PAX) has been developed at the National Chemical Laboratory (NCL), Poona.

Potassium Ethyl Xanthate (PEX) is used as a froth floatation agent in mineral industries. Potassium Amyl Xanthate (PAX) is also used for similar purposes.

The present market for PAX is about 30 tonnes per annum, and the projected annual requirement of the National Mineral Development Corporation is about 300 tonnes. The requirement of PEX by Hindustan Zinc Ltd., 22/22, Hospital Road, Udaipur is about 15 tonnes per annum. The present demand is being met by imports and also by indigenous manufacture.

The process developed by the NCL for making PEX consists of mixing ethyl alcohol with potassium hydroxide solution and carbon disulphide. The Xanthate is dried. Similarly PAX can also be prepared by using n-amyl alcohol instead of ethyl alcohol. All the raw materials for the manufacture of PEX are indigenously available.

A suitable kettle with stirring arrangement, a flame proof motor, and a vacuum drier are the main items of plant and equipment. All these are indigenouly available with Indian manufacturers of plant and equipment. No separate plant is needed for the manufacture of PAX. The same plant which will make PEX can be utilised for making PAX. The technology for both the processes is similar. The total capital outly for the manufacture of 150 tonnes per year of Potassium Ethyl Xanthate is about Rs. 5,40,000.

The process is available with the National Research Development Corporation of India.

PRODUCTION TREND OF INDUSTRIAL MACHINERY INDUSTRY IN 1970 AND 1971

(In Rs. Million)

Name of Industry	**Installed Capacity**		**Actual Production**	
	1971	**1970**	**1971**	**1970**
Boilers (Industrial and Power)	115 Plus 1.3 MKW	115 Plus 1.3 MKW	390	309
Sugar Mill Machinery	210	210	166	146
Cement Mill Machinery	260	230	38	84.1
Drilling Equipment	47.7	30	16	20.4
Printing Machinery	9.6	8.6	3.5	3.3
Conveyors and Wagon Tipplers	86.4	86.4	95	78.9
Reduction gears including marine gears	56.2 Plus 1600 Nos.	40.0 Plus 1500 Nos.	60	54.7
L.P.G. Cylinder and valves and regulators	34.9	24.5	40	46.0
Dairy Machinery	25.7	25.7	34.3	24.7
Agricultural Sprayers and Dusters	72.5	73.5	31.5	24.6
Asbestos Cement Product Plants	28.0	28.0	3.6	5.4
Industrial Filters and Centrifuges	21.8	20.1	22.5	20.5
Industrial Screens	22.4	22.4	10.6	9.0
Electroplating Equipments	4.1	4.0	3.4	
Food processing machinery including Bottling Machines and Feed Mill Plant	9.6	9.6	7.5	6.2
Rubber Machinery	5.8	5.8	2.1	1.5
Impregnating and Coating Plants and Coil Winding Machines	2.5	2.5	4.7	3.0
Oil and Gas Firing Equipments	10.0	10.0	7.0	7.0
Industrial Drycleaning and Laundry Equipments	8.0	8.0	2.3	3.0
Ceramics Machinery	1.2	1.2	0.8	0.6
Paint and Varnish Machinery	2.4	2.4	1.6	1.1
Tea Processing Machinery	25.0	23.0	9.6	11.9
Weighing Machinery	45.0	45.0	26.4	22.6
Tobacco Processing Machinery	3.6	3.6	4.3	3.2
Leather and Footwear Machinery	15.5	9.5	2.5	3.0
Oil Mill Machinery	12.7	12.7	6.5	10.0
Rice Mill Machinery (Modern and Conventional)	101.2	101.2	19.0	21.3
Pulp and Paper Machinery	65.6	60.6	51.6	34.0
Mining and Coal Washery	300.0	96.3	41.1	21.5
Steel Plant equipment	N.A.	N.A.	162.8	116.0
Chemical and Pharmaceutical Machinery	274.0 Plus 400 tonnes	183.4 plus to be fixed	183.3	170.0
Building and Road Construction Machinery	55.7	54.8	14.2	13.3
Metallurgical Machinery	N.A.	N.A.	70.6	63.3
Bread and Biscuiting Making Plant	1.2	1.2	0.1	1.1
Rayon Plants	N.A.	N.A.	14.4	12.0
Air Separation Plants	30.6	30.6	0.6	—

(N.A. : Not available)

GRICULTURAL MACHINERY

REVIEW

India is producing a wide range of agricultural achinery including tractors and power tillers manufacured for power operation of a variety of agricultural quipment.

The tractor industry in India is of recent origin. The number of licensed units engaged in the industry was only four in 1960-61 with a total capacity of 10,000 umbers per annum covering range of 21-50 H.P. By 966, a capacity of 30,000 nos. of tractors per annum was licensed between 5 units, but the range of H.P. was confined to 25-50 H.P. only. As the demand for tractors grew over the years, five more units have been licensed during 1970-71 with a capacity of 36,000 unit per annum thus making the overall capacity at 66,000 nos. Of this total, 12500 nos. are licensed for tractors up to 25 H.P., 34,000 within the range of 26-35 HP, 16500 between 36-50 H.P. and 3000 above 50 H.P. In addition to these 10 units, letters of intent have been issued to 18 more units, one in the public sector, two in the state sector and 15 in the private sector for an additional capacity of 141,800 nos. per annum (44,800 nos. upto 25 HP, 28500 in the 26-35 HP range, 47500 in the 36-50 range and 21000 nos. above 50 H.P. range). Further applications under the consideration of the Government of India have a potential capacity to be licensed to the tune of 63,000 numbers per annum. Thus the schemes already licensed and covered by letters of intent together with the schemes under consideraiion add up to a capacity of 270,800 numbers per annum, which is more than thrice the assessed demand by 1973-74 which is at 90,000 nos. per annum.

There are now six units engaged in the production of tractors in the range of 20 to 50 HP although ten units have been licensed. The existing units under production have a total installed capacity of 36,400 nos. per annum and the actual production during 1970-71 was of the order of 20,100 units as against 17,100 during 1969-70 and 15,470 unit during 1968-69.

Lately the Pinjore Unit of the Hindustan Machine Tools has rolled off the assembly line the first batch of 200 tractors. The new plant will be completed soon. During the first year of production 50 per cent of the components will be indigenous and after three years it will be entirely Indian. The tractors are in the range of 20-25 HP. The plant envisages an ultimate annual production of 12,000 tractors valued at about Rs. 220 million.

The Indian tractors have certain advantages because the soil and climatic conditions of India put any form of mechanical power to the severest possible test–heat requiring better cooling, dust needing efficient filtration and surfaces affecting not only implements and tyres but also clutch and transmission of any tractor. The Indian tractors are, therefore, designed and modified to perform under most ardous conditions.

The indigenous content in tractor manufacture has also been improving year after year. It ranges from 80 to 90 per cent now; only critical components like steering assembly, hydraulic pumps, rear axle housing etc. are allowed to be imported. Even these items are being progressively developed in the country and its is expected that by the end of 1972 the import content will be practically negligible.

Though the indigenous production is picking up, it is not sufficient to meet the total requirements of tractors in the country. Wherever necessity arises the gap is met by imports of only such makes/models of tractors that are either being manufactured in the country or are likely to be manufactured under the new proposals. During 1970-71. the number of tractors imported was of the order of 13,300 which together-with the indigenous availablity of 20,100 improved the total availability.

Power tillers which are two-wheeled walking type tractors in the 5 12 HP range are considered to be mainly useful for wet and paddy cultivation. The demand per annum by the year 1973-74 is estimated to be of the order of 80,000 numbers. Though three firms are licensed to manufacture power tillers, only one firm in Hyderabad has gone into production. The approved capacity of the firm is 3000 nos. per annum and the production by the firm was 361 nos. during 1970. To meet the gap between the demand and the indigenous production power tillers are imported.

The total capacity of the three units licensed for the manufacture of power tillers is 14,000 nos. per annum. Of this 9000 nos are in the range of 5-7 HP

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and 5,000 nos. within 8-12 HP range. In addition, four schemes were approved in 1969-70 at a total annual capacity of 39,000 nos. Letter of intent has been issued to a Kerala firm for producing 8-12 HP range tillers at an annual capacity of 12,000 nos.

The country is producing a wide range of agricultural machinery which can be classified on the basis of farming operations in the field or in the agro-industries. The other range of agricultural machinery includes bed preparation implements like ploughs, harrows, rollers, cold crushers, plankers etc., sowing and planting equipment like seed-cum-fertiliser drills and planters; inter cultivation equipment like cultivators, thinning and earthing equipment; plant protection equipment, irrigation appliances including all types of centrifugal, and power driven pumps. The industry is also producing harvesting equipment such as reapers, diggers and cutters, threshing and winnowing equipment, transportation equipment etc.

The Government of India have been following liberal policy of licensing for encouraging expansion in the output of tractor drawn agricultural implements. All the six tractor manufacturing units have been licensed to produce matching implements. A number of small scale units are also manufacturing the implements. Among the existing tractor manufacturing units, at present four units have arrangements for manufacturing implements either in their own factories or through established implement manufacturers in the small scale sector.

The existing tractor manufacturers are producing adequate quantities of matching agricultural implements. Their annual production is 30,000 tonnes in terms of steel. Apart from the large scale sector, agricultural implements both manual and animal operated are produced in substantial quantities by the small scale and cottage units. It is estimated that there are about 2000 small scale units in the country. Broadly speaking, most of the non-power type small and power driven agricultural implements are manufactured in the small scale sector and the large scale units specialise in more mechanised and power driven machines.

Research on the design and evolving of new improved agricultural machinery and equipment has been in progress in India for many years. Many new items of machinery were imported from time to time and tested in different field conditions. Selected items have been taken up for production in the large scale as well as small scale sectors. The seed and crop driers power cleaners and graders, seed handling equipment, power tillers and threshers are some of the items developed from imported machines to suit local conditions in India.

The manufacturers of agricultural machines in India exercise strict quality control at every stage of production so that the customers get only high quality products.

Apart from the range of implements manufactured in the country, there is a wide variety of agricultural hand tools produced sufficiently such as shovels, powrahs, pick axes, rakes and garden tools. Further the units also manufacture animal driven machinery for processing agricultural products such as cane crushers and groundnut decorticators. Though import is allowed as and when necessary for specialised items like reaper binders, combined harvesters and rotovators in limited quantities, indigenous capacity is being created for such items too.

With the growing tempo in production, export of agricultural machinery and implements is also expanding and diversifying. Implements like rotary tillers, disc harrows, disc ploughs, tractor ploughs, harvesting threshing and sorting appliances, agricultural sprayers and a variety of other implements and parts are exported to countries like Ceylon, Nepal, Kenya, Malaysia, Nigeria, Tanzania, Uganda, U.K., Zambia etc. The value of such exports in 1970-71 amounted to Rs. 5.7 million. For the first ten months of 1971-72 (April 71-January 72), these exports earned Rs. 3.84 million in foreign exchange. ☐

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SIZEABLE CONTRACT FOR SPANNERS AND WRENCHES

An export contract valued at Rs. 8 million has been recently secured by an Indian firm from Poland for the supply of spanners and wrenches. The contract was placed by M/s. Metal Export Warszwa, Poland.

The Indian party that received the order, M/s. Hindustan Dowidat Tools Limited, 61 Sundar Nagar, New Delhi-3, are already established in the export field. They export to countries including U. K., U.S.A., France, Italy, Denmark and Sweden.

The above contract was negotiated by the Indian firm through the Projects and Equipment Corporation of India, Janpath, New Delhi-1.

The Indian industry has manufactured a very wide range of hand, small and cutting tools. Most of the world markets have already realized India's competitive position in the line. In 1970-71, the export value of the tools stood at Rs. 44 million which was sizably improved over the previous years' export record of about Rs. 26.5 million. The group of spanners was mainly responsible for the uptrend in the overall export value in 1970-71, in which year the item secured as much as Rs. 13.15 million as against Rs. 5.5 million in the preceding year. Czechoslovakia, U.S.S.R., U. K., Federal Republic of Germany, Greece, Philippines, South Vietnam, Iran, Australia, Canada and U.S.A. figure in the list of principal importers. Wrenches were exported to U.S.A. whose intake was nearly Rs. 5 million out of total exports of this category of about Rs. 7 million. Interestingly the export value of pipe wrenches in 1969-70 was only Rs. 0.9 million. Australia, Iran and Sudan were the other important purchasers.

The continued trend in export growth of small and cutting tools is evident from the estimated export value in 1971-72 at Rs. 60 million. The target for exports in 1972-73 is set at Rs. 75 million.

BOOST IN EXPORT OF TOBACCO MANUFACTURES

Exports of manufactured tobacco from India have been maintaining a steady growth over the past few years. Exports during 1970-71 at Rs. 11.64 million registered an increase of over 80 per cent over that of 1969-70 exports valued at Rs. 6.46 million. The exports during the first ten months of 1971-72 shot up to over Rs. 29 million representing an increase of about hundred and fifty per cent over the exports for the entire preceding year.

Almost all items of manufactured tobacco have shown considerable export increases. Exports of cigarettes specially registered more than 11 fold increase in 1970-71. From an export value of Rs. 267,000 in 1969-70, this rose to Rs. 2.99 million in 1970-71. During the first ten months (April 1971-Jan. 1972) of 1971-72, cigarettes exports further increased to Rs. 18.86 million. Of this, U. K. alone accounted for about Rs. 18.70 million. In 1970-71, U.S.S.R. with an intake value of Rs. 2.90 was the major buyer.

In 1971-72 one single manufacturer in the line, M/s. India Tobacco Co. Ltd., Virginia House, 37, Chowringhee, Calcutta-16 has succeeded in exporting tobacco products at a value of Rs. 23.3 million as against Rs. 1.7 million in the previous year. Apart from making sizeable supplies to U.S.S.R. the Calcutta firm has succeeded in securing orders from Hungary where Indian cigarettes have gained entry for the first time.

Besides exporting cigarettes, the Calcutta firm has also signed a contract with Sudan for Rs. 500 million worth of manufactured cut 'rug' and printed packaging previously imported by that country from U. K.

India's cigarette production was of the order of 62,170 million pieces in 1970 against the total installed capacity of 61,220 million pieces. There has been a gradual improvement in the output year after year - 22,830 million pieces in 1955, 36,971 million pieces in 1960; 54,033 million pieces in 1965 to the level attained in 1970.

TEXTILE CLOTH AND YARN IN EXPORT TRADE

India's exports of cotton manufactures (excluding yarn and thread) were valued at Rs. 974.66 million during 1970-71 as against Rs. 866.27 million in 1969-70. The export value was of the order of Rs. 818.90 million for the first ten months of 1971-72.

M/s. Mafatlal Fine Spinning and Manufacturing Company Limited, Mafatlal House, Backbay Reclamation, Bombay, one of the firms engaged in the production of cotton cloth and yarn have made a good headway in their exports. During 1971-72, the firm exported these products to the tune of Rs. 11.9 million, registering about 29 per cent increase over their export performance during the previous year.

The company has textile mills at Navsari (Gujarat), and Bombay. It also owns a processing house at Bombay. The company's offtake of cloth and yarn during 1971-72, totalled 9902 tonnes valued at Rs. 282.2 million. This was about six per cent higher than the previous year.

The Bombay firm has a chemicals Division also, known as Navin Flourine Industries at Bhestan near

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Surat. The chemicals division manufactures synthetic cryolite and other fluoride chemicals. The working of the unit has been creditable during 1971-72 as it was able to earn a net profit of Rs. 6,70,000 as against a net loss of Rs. 17,30,000 incurred during 1970-71.

I.T.I.'S EXPORT EFFORT

Over Rs. 3.2 million worth of exports were effected by the Indian Telephone Industries Limited, Doorawani Nagar, Bangalore-19 during 1971-72. The Company anticipates an export target of Rs. 5.1 million for the year 1972-73.

In the first quarter of 1972-73 (April–June 1972), the Company's export value was of the order of Rs. 321,000. Among the equipment that was supplied country-wise in the quarter were 50.7 line private automatic exchanges, group selector racks, final selectors and telephone spares to Australia; telephone spares to Greece; switching telephone internal main black and extension green to Guinea, Buttinski Hand Telephone with 24C dial to Jordan, telephone exchange spares to Kenya and Malaysia; 300 line cross-bar exchange equipment, 671 type telephones in different colours, auto-desk telephones and Priyadarshini type telephones to Nepal, telephone exchange spares to Uganda and selector mechanisms to Kenya. The major recipients of the equipment in the quarter were U.K. (Rs. 89,767) and Australia (Rs. 95,975).

PIPE FITTINGS AND EXPORT TRADE

While efforts are being made to promote India's export trade, the contribution of small scale firms is gradually increasing. M/s. Sohinder Singh & Bros., Hauz Qazi, Delhi-6, have exported recently pipe fittings, valves and cocks etc. Chechoslovakia and Poland have placed export orders on the firm for the supply of its products for a value of Rs. 3.5 million and 2.5 million respectively. Also Bulgaria imported goods worth Rs. 2.8 million in 1971.

Besides, the Indian firm earned foreign exchange by their exports to West Germany, Sudan, Syria, Lebanon, Dubai, Qatar, Kuwait and other Arabian Gulf ports.

EXPORT ORDERS FOR BOLTS AND NUTS

Nearly Rs. 8.5 million worth of foreign exchange was secured by the export of bolts, nuts and flat cross arms tension straps in 1970-71.

Adding to the export effort in the line M/s. Azad Welding Works, Azad Mansion Bulandshahar (U.P.) have recently secured a contracts to export Rs. 23,000 worth of bolts and nuts to Trinidad in 1971. The same country placed on order worth Rs. 14,000 for the supply of flat cross arms tension straps (2000 numbers) in 1970.

The firm received earlier another order from the National Electricity Board of Malaysia Kuala Lumpur for the supply of 5000 numbers of bolts and nuts.

EXPORT PERFORMANCE AND POTENTIAL

STEEL STRUCTURALS EARN MORE FOREIGN EXCHANGE

India's export earnings by way of steel structural supplies are estimated to have gone up to a level of Rs. 74 million in 1971-72 as compared to the actual export effort of Rs. 61.7 million in 1970-71. The target for steel structural exports in 1972-73 has been placed at Rs. 105 million by the Engineering Export Promotion Council, Calcutta.

Of the estimated exports in 1971-72, transmission line towers contributed Rs. 42.5 million. Other steel structurals Rs. 27.5 million, and cranes, lifts and hoists Rs. 4 million. Their export earnings in 1970-71 were of the order of Rs. 28.7 million, Rs. 26.5 million and Rs. 6.5 million respectively.

The structurals industry in India today rests on a sound footing. The success of the industry in the export market against world-wide competition is due to its strict adherence to clients' specifications in materials, workmanship and delivery schedules.

There are at present 90 units in India in the organised sector producing light, medium and heavy structurals with a total installed capacity of about 360,000 tonnes per year. Their production during 1971 is estimated at 100,000 tonnes.

With an installed capacity of 93,000 tonnes per year, the production of transmission line towers has shown an increasing trend during 1971. It is expected to be of the order of 62,025 tonnes valued at Rs. 93 million compared to 47,545 tonnes during 1970. The transmission tower industry is in a competent position to provide know-how to overseas parties particularly in the developing world.

The crane industry has also progressed steadily during the Plan period. Presently, there are more than two dozen units in the organised sector having an installed capacity of 34,735 tonnes per year. The production of cranes was of the order of 6,900 tonnes in 1970 and is expected to go up further in the coming years in view of the requirements of Bokaro Steel Plant and other public sector projects that are coming up. The fabrication of cranes so far was mainly for light and medium duty cranes. Production of heavier duty cranes including special cranes for steel mill duty, tower cranes, wharf cranes, etc. has also been taken up by the indigenous firms.

Four units are now engaged in the manufacture of all types of lifts with a total capacity of 910 numbers per year. Lifts up to 500 ft. per minute capacity are being manufactured which can carry up to 25 passengers. Lifts up to 700 ft. per minute capacity are also expected to be produced shortly. During 1971 the production of lifts was estimated at 626 as against 474 numbers produced during 1970.

EXPORT STRATEGY OF AUTOMOBILE AND ELECTRONIC INDUSTRIES

Commercial contacts with leading automobile and electronic industrial units of West Europe, U.K., U.S.A., Canada and Japan are in progress for the purpose os export promotion in these areas from India. The contracts are being organised by the Trade Development Authority.

Leading automobile and electronic firms in the above markets are being idendified and their specific requirements of parts, components, ancillaries and accessories which those markets are willing to sub-contract on Indian industry are being collected. The authority is also endeavouring to bring about merchandising contracts between the export worthy Indian units and the foreign firms so identified. The automobile manufacturers with whom the Authority is in touch include Chrystler Roots Group and Leylands of UK, Volkswagenwerk and Opel of West Germany, Fiat and Alfa Romeo of Italy, Citroen of France and American Motors of U.S.A. The specific parts and components which are sought to be exported include piston and piston rings, shock absorbers, leaf springs, automotive castings and forgings, cold formed aluminium profiles for window channels, hydraulic jacks, gaskets and automotive electrical equipment.

Among the overseas electronic firms with which the authority is in touch include General Electric, Texas Instruments, Motorola, Teledyne, Hugle International, Computer Micro Technology, Zenith Radio, Warwick Ampox, in the U.S.A., Racal Mobilical, Best and Raynor and British Radio Corporation in U.K., AEG-Telefunken, Rhode and Schwarz, Siemens and Erich Sommer of West Germany and Thomson CSF, Almex and Zintex of France. The electronic components that are sought to be promoted for export include semi-conductors, capacitors, resistors, switches, relays, printed circuit boards and potentiometers.

Already certain buyer's mission have visited India from Citroen and Europeanne de Electronique of France and the representatives of some U.S. companies have also visited India for exploration of purchase possibilities. A representative of International sub-contracting Exchange at Vienna who visited India recently is reported to have indicated good possibilities for West European manufacturers to sub-contract component supplies from some of the Indian units.

EFFECT OF BRITISH ENTRY INTO ECM ON INDIA'S TRADE

The Government of India have been impressing both on the U.K. as well as the European Economic Community need for providing adequate safeguard measures for indian products for which conditions of accession might deteriorate following the U.K.'s accession to the Community.

The movement of integration in Europe which began with the formation of the EEC and EFTA (European Free Trade Area) agained impetus with the signing of the accession in January 1972 providing for the entry of U.K., Denmark, Norway, and Ireland into the EEC. It is now reported that recently an agreement was concluded for the formation of a free trade area between the enlarged Community of ten nations on one side and five other former EFTA countries viz. Sweden, Iceland, Portugal, Switzerland and Austria on the other.

In the integration process of West Europe, the most crucial from the India's trade point of view has been the British accession to the EEC. Following the U.K.-India Trade Agreement of 1939, India has been enjoying unrestricted duty-free and often preferential entry for most of her products in the U.K. market. The British membership of the Community would now mean the end of all these preferences and further Britain would be called upon to adopt the common tariff of the EEC for imports from all non-member countries.

Among the efforts made by India to secure safeguards for her exports that are likely to be affected by the British accession to EEC, an Aide Memoire was handed over in February this year to the British Government identifying the problems that would arise for various items of India's exports and urging for early consultations with a view to finding suitable solutions. A copy of the Aide Memoire was also handed over to the EEC Commission. In their reply, the British Government stated that the solutions into the problems would have to be settled with the Community. They recognised the fact that the Generalised Scheme of Preferences (GSP) did not compensate for the loss of trade advantages involved for India due to U.K.'s accession to the Community. The U.K. Government have visualised solutions to India's trade problems in respect of a couple of commodities like jute goods and coir manufactures.

LATEST PICTURE OF WAGON EXPORTS

It has been estimated that the number of railway wagons exported by India during 1971-72 was 821.

The licensed and installed capacity of 16 railway wagon builders is 40,869 and 31,059 wagons respectively. Production of wagons which was 27,565 in 1964-65 has somewhat declined in recent years because of certain limitations such as steel shortage, but the situation has gradually returned to normal and it is hoped that the production position will improve soon. As there is sufficient capacity for meeting internal demand as well as export orders, Indian Government continues to emphasise the scope for boosting exports of railway wagons and equipment.

ELECTRONICS IN EXPORT MARKET

The export earnings of electronics during 1971-72 are estimated to have gone up to Rs. 60 million as against Rs. 47.9 million in the preceding year. The export target for this category for the year 1972-73 has been placed at Rs. 76 million.

Radios, parts and electronic components have earned Rs. 25 million in 1971-72 as against Rs. 16.8 million in 1970-71. Data processing machines earned Rs. 23.5 million against Rs. 19.2 million; gramophone records Rs. 5 million against Rs. 4.3 million; P.A. equipment Rs. 2.5 million against Rs. 1.6 million and telephone and teleprinters Rs. 4 million against Rs. 6 million.

Production of radio receivers has improved to 1.97 million numbers in 1971 as compared to 1.77 million numbers in 1970. The output of T.V. receivers increased to 7790 numbers from 5128 numbers; P.A. equipment to 4182 numbers from 3092 numbers and record players to 96,090 numbers from 48,520 numbers. Production of computers increased from 6 numbers in 1970 to 23 number in 1971 and that of electronic instruments/equipment (professional) from 249 numbers to 325 numbers.

There has been substantial increase in the production of telecommunication equipment like wireless communication equipment, micro-wave equipment, railway signalling equipment, RADAR and other special equipment and telephone and telegraph equipment. Production of teleprinters increased from 5124 numbers in 1970 to 5481 numbers in 1971. The value of production of telephone and telegraph equipment increased from Rs. 227.2 million to Rs. 300 million.

EXPORT POTENTIAL TO LATIN AMERICA

Notwithstanding the diversification of India's export trade to different regions in the world in recent years, Indian supplies to the Latin American region are still not significant. The export trade to the region which dwindled from $7.3 million in 1967-68 to $4.8 million in 1968-69 rose to $6.2 million in 1969-70 and $10.9 million in 1970-71. India's share is too meagre-ont of the Latin Ameriean import volume (excluding Cuba) of $15.13 billion (1970). However, the emerging capacity of the Indian industry to supply and the established demand of the Latin American markets indicate that there are several possibilities of expanding India's export trade to that region, according to a recent study made by the Indian Institute of Foreign Trade, New Delhi.

The Institute's Study has identified specific products that have export potential to Latin American market. Among the engineering products, the export scope in the category of machinery and transport equiment is unmistakable. Based on the twin criteria of India's total exports exceeding $100,000 in 1970-71 and Latin American imports of over $500,000 in 1968-69, the Institute's Study specifically mentions the export possibilities of bars and rods excluding wire rod) of other than high carbon or alloy steel; angles, shapes and sections (excluding rails) 80 mm. or more and sheet piling of either high carbon on alloy steel; tubes and pipes of iron or steel welded, galvanised, clinched, etc.; tubes and pipes, fittings of cast iron including malleable cast iron; tubular steel poles for electric transmission and distribution lines; steel towers; air or gas compressors and free piston generators for gas turbines; transformers up to 37.5 KW. relating up to 3000 KVA; transistor radio receiver sets (domestic); railway and tramway goods, goods vans and wagons; jeep and land rover type vehicles, household sewing machines and galvanised wire. The export potential of engineering products to the region can be further established by the fact that the import shares of Argentia, Brazil, Chile, Colombia and Venezuela in 1966 in respect of machinery and transport equipment as well as other manufactures were 60 per cent, 50 per cent, 29 per cent, 67 per cent and 72 per cent, respectively.

Among the chemicals and allied products the important areas for possible export promotion to the Latin American region from India world be hard coke, beta ionone, lemongrass oil, tyre cases for off the road vehicles, ferro chrome, footwear and human hair.

In the textile group, polyester suitings, furnishing cloth, sheeting, shirting, viscose and filament rayon, mill-made rayon and tafatta, mill-made towels, are considered to be prosective items.

Selected primary commodities that Indian trade can possibly supply to the Latin American region would include prawns and shrimps, cashew kernels, curry powder, Karaya gum (Indian Targacanth) and psyllium husk.

The Institute's Study has recommended immediate surveys for the export possibilities of opium crude, cashew kernel, solvent extracted, oilcakes and meal of groundnuts; cardamom, mica spilittings, methyl benzene sulphonate, handloom fabrics, woollen non-handloom worsted, biscuits, leather goods and footwear. In addition, immediate exploration is also suggested by the Institute for items like polythene resins and compounds portland grey cement, cut natural precious stones, snake and lizard skins, inner tubes for bicycles, ferro-manganese as well as engineering items like grinders, switches, interchangeable tools, hand tools and assortment accessories/attachments of machine tools.

The Institute's Study has further suggested a group of items for short term export strategy on the basis of the import value of each Latin American country exceeding $2 million and Indian exports exceeding $1 million (1970-71). The products that can be explored on a short terms basis are cashew kernels (broken), bars and rods, angles, shapes, and skins, steel tubes, spanners and compressors, to Argentina, bars and rods, spanners and compressors to Brazil; tubes and pipes of iron or steel galvanised, spanners and compressors to Chile and Columbia and had coke, furnishing cloth, transistor radio receiver sets and jeep and land rover vehicles to Venezuela.

The products of export potential to the region on a long term basis as have been identified by the Institute's Study are prawns and shrimps and beta ionone to Argentina, men's and boys' undergarments, dress shirts (cotton) and bata ionone to Brazil, velvet to Chile and beta ionone and tyre cases for off the road vehicles to Columbia. Besides, there are items that have sufficient production base in India such as angles, shapes and sections less than 80 mm, pipes and tubes of iron or steel galvanised, transistor and radio receiver sets and bicycles that can be exported to Argentina; tubes and pipe fittings, tubular steel poles for electric transmission and distribution lines, finished structural parts, structures of steel towers and bicycles to Brazil, domestic utensils of copper to Chile and bars and rods to Columbia.

Presently, India's export trade (1970-71) to each of the Latin American countries is as follows:—Argentina : $4.45 million; Brazil : $1.11 million, Chile : $0.28 million; Columbia : $59,00; and Venezuela : $0.19 million. To Argentina, the major products that are currently being supplied by India are hessian cloth, railway rails, beams, channels, pillars, garders and bridge works (fabricated), paper insulated cables, crude opium, machine made shellac, hard drawn bars, aluminium conductors, steel reinforced (ACSR); henna leaves and pots, carpet backing cloth and artware of copper, brass, bronze and other alloys. Machine-made shellac constitutes the most important item of India's trade with Brazil, its exports having soared to $635,520 in 1970-71 from a level of $196,930 in 1968-69.

Medicaments constitute another area of export importance. Dried fish is of recent introduction into the Brazillian market. Other products figuring in India's trade export to this country are hand-made shellac, carpet backing cloth, uncut emarrelds, butter and garnet lac, etc.

While iron ore (26% of the total) is an important recent introduction in the export trade of Chile, black tea (leaf in bulk), jute sacking and hessian bags and sacking cloth account for the bulk of present exports. Other products exported to the country from India are narrow fabrics hand-made shellac, artware, cumin and woven coir matting.

Hand-made shellac is the most important item supplied by India to Columbia accounting for about 49% of total exports (1970-71). There is good evidence that non-tradition products are entering this market particularly the items of machinery, alloys, machine tools and lizard skins. To Venezuela hessian cloth is a major item of current export. But the supplies of carpet backing cloth have grown almost four-fold since 1968-69. There is also ample evidence of the intorduction of non-traditional manufactures like machinery parts, bicycles, and parts, cinematograph projectors, embroidery and machine-made shellac.

PROGRESSIVE CANALISATION OF IMPORT TRADE

The Government of India's declared policy is to canalise import progressively through the public sector agencies. Accordingly the import of a number of items is being added to the list of canalised imports every year through these agencies. Under the import policy for the year 1969-70 eleven additional items were canalised; 39 items were canalised in 1970-71, 51 in 1971-72. and 56 in 1972-73. Presently the import of a total number of 168 items is canalised.

Additional imports are also effected by the Director General of Supplies and Disposals, Defence organisations, Government Departments, public sector trading agencies and industrial units in the public sector in respect of items, the import of which is not formally canalised. Taking all these imports into view, the share of the public sector agencies in the total import trade of India during 1972-73 is estimated to be of the order of 70 to 75 per cent.

The Minerals and Metals Trading Corporation is the agency for the import of copper scrap (whether ingotted or otherwise), lead ingot, pig and scrap, zinc or spelter unwrought in the form of ingots, cakes, tiles and slabs; zinc granulations and dust; tin block and tin scrap, copper, unwrought in the form of ingots, blooms, slabs, cakes, tiles, bricks, blocks, billets, cathodes, blister bars, elecrolytic wire bars and ingot bars; nickel virgin/nickel scrap (Hindustan Steel Limited is the other canalising agency), aluminium (E.C. grade); platinium, palladium, cobalt, bismuth, cadmium, refractories and refractory material (HSL is the other canalising agency), mercury, high grade manganese ore, antimony ore, tungsten ore. high grade molybdenum ore, titanium ore, phosphorous (red), non-processed elemental/non-refined recovered, rock phosphate, mineral phosphate, muriate of potash (potassium chloride other than industrial grade), sulphate of potash, sulphate of ammonia, urea (fertilizer grade), asbestos raw, fluorspar (acid grade), ferro-molybdenum, ferro-tungsten, ferro-vanadium, ferro phosphorous, ferro silinium, ferro cobalt, ferro nickel, ferro aluminium and silico aluminium, ferro silico zirconium, ferro boron (including stabilised ferro boron with aluminium and titanium like grainal or batsally), ferro columbium (niobium), ferro chrome (containing 0.03 per cent or less carbon or Nitrogen bearing), ferro manganese (containing less than 0.05 per cent carbon), ferro titaniun (containing less than 1 per cent aluminium), ferro alloys in powder form (except ferro-titanium) for welding industry only, all mild steel, and high carbon steel semis, including ingots blooms, slabs and billets, stainless steel sheets, plates and strips in out length or in coils, cold rolled grain oriented electrical steel sheets, strips either in cut lengths or in coils, heavy melting scrap.

Through the State Trading Corporation of India, the items which are canalised for import are : raw manila hemp (fibre), raw sisal fibre, graphite electrodes, graphite anodes, sodium nitrite, aniline oil, benzidine dihydrochloride, naphthionic acid/sodium naphthionate, beta naphthol, copra, hops, gum arabic, mutton tallow, soyabean oil, palm oil, sulphadimidine (sulphamethazine), amido pyrine, analgin, phenobarbitone, piperazine and its salts, folic acid, streptomycine sulphate, tetracycline base and tetracycline hydrochloride, thiamine mononitrate and hydrochloride (Vitamin B1), Sulphaguanidine, riboflavine (Vitamin B2) and Riboflavine 5-phosphate sodium, chloramphenicol powder, chloramphenicol palmitate, chloramphenicol succinate, sulphathiazole, sulphadiazine, erythromycine estolate, erythromycine stearate and erythromycine ethyl succinate, chlorequine, iodine, citric acid of pharmacepocial grade tartaric acid of pharmacepocial grade, cresylic acid of pharma cepocial grade, tetanus antitoxin 35 mm raw stock (whether black or white or colour) excluding sound negative, graphite, peppermint oil (mentha pep), citronella oil, synthetic rubber, nylon yarn and thread other than industrial nylon yarn, polyester filament yarn (except polyester filament yarn having a diameter range of 40 microns to 210 microns for manufacture of surgical sutures), X-ray films, empty hard gelatine capsules, ammonium nitrate-technical grade, emyl and iso-amyl alcohol, aluminium fluoride, cresylic acid, caprolactum, crude borate mineral, C6-C12 alcohols for plasticisers, such as octanol/iso-octanol/alfol, alfanol, cyno pyridine, citric acid–technical grade, calcium carbide, dodecyl benzine, DMT, Dinitrochloro benzene, dimethylamine, endrin (insecticide), formic acid, iodine, meta aminophenol, melamine pure, methanol technical, methyl ethyl ketone per oxide, monomethylamine nitrocellulose chips/nitrocellulose other than 15-20 seconds viscosity, pentraerythritol, potassium chloride (industrial grade), pyridine base and pyridine technical, sodium cyanide, tartaric acid, trimethylamine, urea (chemical grade), vinyl chloride, caustic soda, soda ash, ortho-xylene, para-xylene, titanium dioxide, lithopone, sodium nitrate, corkwood, rayon grade wood pulp, raw wool/wool tops, rough blanks other than bifocal blanks, cellulose acetate flakes, cellulose acetate sheets/films, cellulose acetate butyrate and cellulose acetate propionate, cellulose nitrate sheets and flakes, methyl methacrylate monomer, polyvinyl chloride resin powder, P.V.C. composition including moulding powder, polyethylene moulding powder (low density), acrylic resins, cryolite, all synthetic non-cellulose fibres including polyester fibre, polypropylene, nylon moulding powder and A.B.S. moulding powder.

Raw cotton is canalised through the Cotton Corporation of India Limited Bombay, cashew nuts through the cashew Corporation of India Limited, skimmed milk powder through the Indian Dairy Corporation, raw silk through the Central Silk Board, petroleum jellies, paraffin wax, micro-crystalline wax, kerosene oil, base lubricating oils through the Indian Oils Corporation.

Besides nickel virgin/nickel scrap, refractories and refractory material, all mild steel, high carbon and alloy steel (other than stainless steel) wire rods in coils, all ectrical steel sheets, strips other than cold rolled grain iented, whether in cut lengths or in coils all mild nd special steel sheets, strips and skelp in both hot rolled nd cold rolled either in cut length or in coils, all mild eel and special steel plates including ship building uality, boiler quality and chequered plates, whether cut lengths or in coils, all prime tin plates including pen top sanitary can quality, the Hindustan Steel imited is the agency for import of the above items.

The import of heavy melting scrap is organised hrough the Metal Scrap Trading Corporation, besides hrough the MMTC.

EXPORT UP-TREND IN INDUSTRIAL PLANT AND MACHINERY

India's export earnings in the category of industrial plant and machinery have improved to an estimated Rs. 127.5 million during 1971-72 from Rs. 106.10 million in 1970-71. The target for these exports in 1972-73 has been placed at Rs. 250 million by the Engineering Export Promotion Council. Of the estimated export value in 1971-72, textile machinery including jute and knitting machines contributed Rs. 60 million as against their actual exports in the preceding year at Rs. 59.6 million. The group of cement, chemical and sugar machinery contributed Rs. 26 million as against Rs. 8.7 million. The tea, oil and other processing machinery contributed Rs. 6.5 million against Rs. 11.2 million. Other industrial machinery including boilers and excavators earned Rs. 35 million as compared to Rs. 26.6 million.

India has an efficient production base for a wide variety of industrial machinery. A stage of near selfsufficiency has been attained in many areas. With 1960 as the base year, the production index of machinery other than electrical increased to 376.6 in 1970. The manufacturing units have developed sufficient technical competence and are now in a position to undertake supply of machinery and equipment on a turn-key basis. The units have reached a high indigenous content.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

HEAVY ENGINEERING IN PUBLIC SECTOR

The total value of production of the heavy engineering units in India's public sector, namely, Heavy Engineering Corporation Limited, Ranchi, Mining and Allied Machinery Corporation Limited, Durgapur; Triveni Structurals Limited, Naini-Allahabad Bharat Heavy Plants and Vessels Limited Visakhapatnam; Tungabhadra Steel Products Limited Tungabhadra Dam and Engineering Projects (India) Limited, New Delhi is estimated to have amounted to Rs. 543.3 million in 1971-72. The total public investment in these companies was Rs. 1897.2 million in the form of equity participation and Rs. 1556.0 million by way of loans as at the end of March 1972.

The Heavy Engineering Corporation Limited, Ranchi has three engineering plants, namely, a Heavy Machine Building Plant with an installed capacity to manufacture 105,000 tonnes of heavy machinery and structurals per year; a Foundry Forge Plant, with an installed capacity of 180,000 tonnes per year and a Heavy Machine Tools plant, with an installed capacity of 10,000 tonnes per year. The production in these plants in 1971-72 was 30,468 tonnes (Rs. 282.46 million) for Heavy Machine Building Plant, 20,954 tonnes (Rs. 93 million) for the Foundry Forge Plant and 20 numbers of machine at Rs. 12.63 million for Heavy Machine Tools Plant.

The Heavy Machine Building Plant has manufactured for the first time in India many kinds of equipment as wagon tippler, seven roller screen, bell control winch, 180 tonnes EOA crane, Hot Blast Valve, Ten Roller Screen, Roll Crasher, Coke Pusher, Door Extractor, Separating Valve, Lime Mixing Tanks, Auto Dump Car, 140 tonne Iron Ladle Car, Roller Tables for Bokaro Steel Limited and Skip.

The Mining and Allied Machinery Corporation (MAMC) produced 11,300 tonnes at a value of Rs. 100 million in 1971-72 (estimated). The production in the year was significantly better than in the previous year and included a number of sophisticated and complex items supplied to Bokaro steel plant, Haldia Port, Hindustan Copper and other public sector undertakings. The company is gradually diversifying its scope of manufacture and initiated production of bulk handling equipment for major ports of India including conveyors, stackers, reclaimers and shiploaders recently.

M/s. Triveni Structurals Limited, Naini produce an estimated 10,700 tonnes in 1971-72 and anticipate an output of 15,000 tonnes by 1972-73.

Bharat Heavy Plate and Vessels Limited, Visakhapatnam, have received a total value of orders worth Rs. 50 million during 1970-71. In fact, in the last three quarters of the following year, it received orders of the value of Rs. 140 million. The gross production of the plant was 2500 tonnes valued at Rs. 16.75 million in 1971-72.

Tungabhadra Steel Products Limited, Tungabhadra Dam mainly produce hydraulic gates, hoists and penstocks for river valley projects and transmission towers and building structurals, pressure vessels, tanks, gantry cranes and EOT cranes. Against 3590 tonnes valued at Rs. 11.6 million in 1970-71, the project produced in 1971-72 an estimated 4395 tonnes valued at Rs. 14.43 million. They have an expansion scheme on hand which anticipates to increase production of hydraulic and other structurals by 200 tonnes per year.

The Engineering Projects (India) Limited, New Delhi is a consortium of selected public sector undertakings constituted with the intention of taking up business connected with the supply of equipment to steel plants, mines, fertilizer factories and other industrial projects by entering into contracts for design, manufacture, inspection, supply, erection and commissioning of equipment on a turnkey basis. The public sector projects that are participating in the consortium are M/s. Heavy Engineering Corporation Ltd. Ranchi, Bharat Heavy Electricals, New Delhi, Heavy Electricals (India) Ltd. Bhopal, Mining & Allied Machinery Corporation Ltd. Durgapur, Bharat Heavy Plate and Vessels Ltd. Visakhapatnam, Triveni Structurals Ltd., Naini, Instrumentation Ltd., Kota and Hindustan Steel Construction Ltd., Calcutta.

CASTINGS AND FORGINGS

Castings and Forgings Industries in India have witnessed sizable expansion both in terms of production and export trade. The ferrsous castings industries are in fact included in the priority industry's list. Ferrous castings constitute basic feeder component meeting the needs of several engineering industries such as railways, automobiles, machinery and tools.

The production of steel castings improved from 34,000 tonnes in 1960-61 to 52,000 tonnes in 1970. The output in respect of cast iorn castings (including alloy iron castings) also has been brightening up year after year. Their production during 1971 is estimated to have been increased by about 43 per cent over that of 1970. The units in the cast iron castings industry which were in the past producing sleepers and manhole covers have now taken up the manufacture of other items required by various engineering units. Under the current industrial licensing policy special attention is being paid to the development of the alloy iron casting industry.

In respect of malleable iron castings, production during 1971 was estimated at 24,000 tonnes (Rs. 72 million) which recorded an increase of 54 per cent compared to the production during 1970 at 15,600 tonnes valued at Rs. 46.8 million. The current installed capacity for this variety of castings has been of the order of 22,000 tonnes per annum.

Thanks to the substantial orders placed by the Indian railways for their requirements of S G. iron axle box bearings, the production of S.G. iron castings also has improved considerably.

Steel castings (including alloy steel castings) which form component parts required by industries like railways, automobiles, machine tools, chemical and petrochemical machinery have a total installed capacity of 137,000 tonnes per annum. The 43 units engaged in the line produced during 1971, an estimated Rs. 224 million. Some of the steel casting units have recently taken up the manufacture of alloy steel castings in order to utilise the capacity already installed by them.

A new field of special ferrous castings is the precision investment castings which are required by the Defence departments, Instruments industries and aeronautics industry.

Steel forgings industry is the basic feeder industry for supply of components to automobiles, earthmoving equipment, railway rolling stock, diesel engines, machine tools and the atomic industry. A target of 220,000 tonnes capacity is envisaged for the forgings by the end of the Fourth Plan (1973-74). Currently there are 500 units including five public sector undertakings with a total capacity of 147,025 tonnes per annum. The existing steel forging units are capable of producting sophisticated closed die forgings from stainless steel, alloy steel, tool steel etc. One steel forging unit, namely, M/s. Heavy Engineering Corporation, in the public sector, is even capable of manufacturing drop forgings, of large sizes up to nearly 35, tonnes per piece.

The iron and steel castings and forgings industries have contributed well to the country's export effort. Their export earnings in 1970-71 amounted to about Rs. 2.3 million. In the first 10 months of 1971-72 the export value has nearly doubled to Rs. 4.18 million. Rough iron castings are mainly supplied to U.S.A., Bulgaria, Switzerland, Tanzania and Malaysia. Rough steel castings are imported mainly by Newzealand, Arab Republic of Egypt, and Burma. Iron and steel forgings in rought state are also supplied to U.S.A., in addition to Yugoslavia, Arab Republic of Egypt, Iran, Kuwait, and Greece The upsurge in the export trade in 1971-72 was principally owing to the larger intake by Yugoslavia and Kuwait markets.

PROGRESS OF BOKARO STEEL PLANT

The fourth integrated steel plant to be built in the Public Sector, Bokaro constitutes the largest industrial project ever undertaken in India, both in terms of magnitude of work and investment. Of the total investment on steel development under the Fourth Plan, Bokaro alone would account for about 65 per cent i.e. Rs. 6800 million out of Rs. 10530 million. The gap in the domestic supply and demand of finished flat products estimated at one million tonnes in 1974-75 is sought to be filled in by production of 1.2 million tonnes from Bokaro in the first stage.

The project when completed envisages a four million tonnes capacity, a significant portion of which is incorporated in the construction of the first stage itself. During the first stage, about 84 per cent of the earthwork, 74 per cent of concreting, 84 per cent of underground communications, 73 per cent of structual steel work, and 64 per cent of equipment erection is to be completed.

While the three steel plants in the Public sector at Bhilai, Rourkela and Durgapur, were turnkey projects imported, Bokaro is India's first Swadeshi (indigenous) steel plant. Besides the participation of Indian organisations in design and engineering of the project in a significant way, about 90 per cent of building structures, 100 per cent of technological structures, 65 per cent of mechanical equipment, 48 per cent of electrical equipment, 80 per cent of instruments and 77 per cent of refractories, are for erection indigenously for the construction of the first stage of this plant. Much of the equipment ordered from indigenous industries for the plant is being manufactured for the first time in India. The requirements of sophisticated varieties of refractories for instance are being made to a sizable extent indigenously. Besides, a variety of skills in steel plant construction is being acquired by Indian technicians and workers.

While initially it was intended to proceed straight from the 1st stage (1.7 million tonnes) to the second stage (4 million tonnes), it is desired to have an intermediate stage of 2.5 million tonnes to meet the increased demand for steel. As for the construction work of stage 1, the civil work on the blast furnace complex is almost complete. Again, about 99.3 per cent of the earth work excavation, 86 per cent of concrete, 84 per cent of the underground communication have been completed. Also the work on the second stage of the plant has been commenced.

NON-FERROUS VIRGIN METALS
A REVIEW

The year 1971-72 presented a continuous expansion in the minining and output of non-ferrous virgin metals in India. In the year, aluminium was produced to the tune of 178180 tonnes as compared to 161,680 tonnes during 1970; Copper output was around 9554 tonnes.

The production of lead was of the order of 1540 tonnes while that of zinc was 10,820 tonnes.

Aluminium industry which occupies primary position in the non-ferrous metal sector was started in a small way in 1944 with one plant to manufacture the metal from bauxite. Till about 1960, only two firms were producing the metal at a production level of 18245 tonnes. Since then a notable increase was registered till the production came to a level of 1,78,180 tonnes in 1971. The total licensed capacity for aluminium by the end of 1971 was of the order of 4,29,850 tonnes. The aluminium industry in the country not only helps the import substitution drive but even secures growing sums of foreign exchange through exports. During 1970-71 the industry secured Rs. 43.5 million while in the first three quarters of 1971-72 the export value was Rs. 28.22 million. Keeping in view the substantial deposits of bauxite in India (227 million tonnes of which 220 million tonnes constitute good grade deposits), it is expected that Indian economy will reach the stage of self-sufficiency in the industry by the end of the Fourth Plan period.

While the demand for copper ingots is estimated to go up to 124,000 tonnes by 1973-74, the production capacity is likely to reach 47,000 tonnes per year by that year with the setting up of a public sector unit. Presently there are two units licensed to manufacture copper ingots. M/s. Indian Copper Corporation in the private sector has an installed capacity of 9600 tonnes of fire refined copper against which they are licensed to produce 8400 tonnes of electrolytic copper ingots. The unit was also allowed to instal additional capacity for a flash smelter to produce copper, an intermediary product from which the electrolytic copper can be produced. In the public sector, M/s. Hindustan Copper Ltd., have been licensed recently for an installed capacity of 31,000 tonnes of electrolytic copper ingots.

As in aluminium industry, copper products have also contributed to the earning of foreign exchange. In the first 10 months of 1971-72, export value of the products is Rs. 37.82 million, while in the full year of 1970-71 it was Rs. 69.87 million.

M/s. Hindustan Zinc Limited, the only unit in the public sector for the manufacture of lead has a rated capacity of 5400 tonnes per year. Currently, some requirements of lead are being met by imports as indigenous production is of the order of 1540 tonnes (1971) while the demand of lead which is more than the present production level is estimated to go up to 97,000 tonnes by 1973-74. There are two units in the country engaged in the manufacture of zinc metal. M/s. Cominco Binani Zinc Ltd., a private sector organisation, has a licensed capacity of 20,00 tonnes per year and its actual production was 10,821 tonnes (1971). M/s. Hindustan Zinc Limited in the public sector which is licensed for a capacity of 18.000 tonnes have been able to produce 10,395 tonnes during 1971. They have a proposal to set up a zinc smelter for an installed capacity of 30,000 tonnes. The demand of zinc by 1973-74 is estimated to go upto 142,000 tonnes per annum. In view of the gap between production and demand, part requirements are being met by imports.

Among other non-ferrous metals, antimony is produced to the tune of 605 tonnes (1971) but the demand for this metal by 1973-74 is estimated to go up to 1500—1600 tonnes. The setting up of a unit in the public sector for production of the metal from imported ore is under consideration. The economy is expecting to become self-sufficient with the setting up of the unit.

Silicon is manufactured by a single unit in Orissa. M/s. Indian Metals and Ferrow-Alloys Ltd., has been licensed to produce 3000 tonnes per year. It is expected that this unit will go on stream giving silicon of 98 per cent variety by 1973. Several proposals are under way for the production of magnesium also.

The non-ferrous semis and alloys industry comprising of non-ferrous rolled products, plates, sheets, strips and foils; extruded solid and hollow sections, various grades of hard drawn wires; metal powder and sintered bushes and components depends presently on import of basic materials like copper, zinc, tin, plate, nickel etc. Notwithstanding the foreign exchange limitations for the import of these raw materials, the semis and alloys industry has made some progress. An important feature of this line of manufacture has been the trend of diversification. For instance, in the sintered iron bushes and components sector, a number of new items and shapes have been taken up. In the extruded products, the requirements of brass and copper tubes in the sugar as well as refrigeration and air-conditioning industries are being met by indigenous manufacturers. Thanks to local entrepreneurship, it has been possible to develop absolutely new and technologically advanced products like bi-metal strips, clad materials and resistance wares. Manufacture of sophisticated items like fine gauze nickel alloy and monal wires, precision castings, die-castings for aluminium and copper alloys is also being made possible.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

ANODIC PHOSPHATING OF MILD STEEL TUBES

A new process of phosphating of mild steel tube has been developed by the Central Electrochemical Research Institute (CERI) Karaikudi.

In this new method, the steel tube is placed between a central steel rod and an outer perforated steel cylinder fixed in a frame and kept in a solution of sodium phosphate held in a polythene or PVC lined tank. A number of such frames to carry the tubes can be placed in the solution tank and several tubes can be phosphated at a time. Phosphating in done by passing a current from the tube to the auxiliary electrodes.

The invention makes use of a cheap raw material which is available indigenously as a by-product. Since the cost of raw material contributes substantially to the cost of phosphating, the use of cheap raw materials reduces the cost of phosphating. The process has a few other specific advantages as well. The bath solution is only replenished for loss of phosphate but is not discarded at any time. Use of room temperature to carry out the phosphating simplifies the operation. Since the bath is made of one chemical, the trouble of change in the composition of the bath during use experienced in conventional phosphating does not arise. Dependence on supply of proprietory phosphating chemical is eliminated. One or both sides of the tube can be phosphated.

The process has been studied on laboratory scale. Several numbers of 1.2 metres long x5 cm dia tubes were individually phosphated. Six tubes of 1 metre long x 3.75 cm. dia were phosphated together.

The raw materials required in the process are : tri-sodium phosphate, trichloroethylene and hydrochloric acid. All are available indigenously.

The essential items of plant and machinery are : rectifier, filter press, ion exchange column, PVC pumps, centrifugal pumps, de-ioniser, pulley block and chain assembly, electrically heated drying chamber.

Phosphate coatings are widely employed to improve adhesion of paint to metal and retard spreading of corrosion under paint films and reduce friction in wire making, tube making, body pressing and other deep drawing operations.

VIOLIN BOW HAIR

A process for cleaning, scouring and bleaching the hair available to the acceptable white or off white shades has been developed by the Central Leather Research Institute, Madras.

In the violin bow, a horse tail hair is usually used. The musicians have got used to white or off white hair for this purpose. The present demand is mostly being met by imports. In India, horse tail hair available is mostly black or brown in colour. The process does not materially affect the strength of the hair.

The demand for violin bow hair is said to be considerable, although no statistics are available. The various aspects of the process viz., cleaning, scouring and bleaching of the horse tail hair have been studied on a laboratory scale and no pilot plant work has been undertaken.

The samples of violin bow hair processed in the laboratory were comprehensively tested by the Centre for Development of Musical Instruments, Kilpauk, Madras and were found to be satisfactory in all respects.

The main raw material is the horse tail hair having a lenth of 65 cms. and above. By way of equipment, simple glass or enamel trays only are required. The chemicals required are all indigenously available. It is felt that a unit bleaching about 2 kg. of horse tail per day would be quite economical. Once the process is established commercially, not only the imports of violin bow hair could be stopped but the material could be exported to South East Asian countries where violin is in vogue.

COMPOSITION OF INDIA'S IMPORT TRADE

(in million rupees)

Commodity	April - January 1970-71	 1971-72
Dairy products and eggs	**86.12**	**169.51**
a) Milk and cream	69.50	153.65
Cereals and cereal preparations	**1783.91**	**1227.55**
a) Wheat	1483.26	988.52
(b) Rice	217.33	148.80
Fruits and vegetables	**322.51**	**306.80**
(a) Fresh fruits and nuts	282.00	254.89
Pulp and waste paper	106.84	84.21
Textile fibres and waste	**1014.85**	**1171.34**
a) Wool and other animal hair	139.76	121.16
b) Cotton	782.78	961.25
Crude fertilisers and crude minerals	312.31	292.17
Petroleum and products	**1063.84**	**1619.63**
a) Petroleum, crude and partly refined	852.08	1239.79
b) Petroleum products	211.76	379.84
Animal oils and fats	144.51	157.00
Fixed vegetable oils and fats	209.97	221.78
Chemical elements and compounds	**564.13**	**619.60**
a) Organic chemicals	430.42	449.40
b) Inorganic chemicals	82.09	101.42
Medicinal and pharmaceutical products	204.71	227.18
Manufactured fertilisers	516.31	587.16
Paper, paper board and manufactures	205.85	281.81
Non-metallic mineral manufactures	**278.32**	**337.15**
a) Pearls, precious and semi-precious stones	210.00	223.32
Iron and Steel	**1186.96**	**1995.64**
a) Ingots and other primary forms	22.97	117.23
b) Iron and steel bars, rods, angles, shapes and sections	148.58	299.11
c) Universals, plates and sheets	772.26	1160.40
d) Tubes, pipes and fittings	110.09	150.78
Non-ferrous metals	**1001.28**	**904.04**
a) Copper	528.44	447.42
b) Nickel	114.27	58.35
c) Aluminium	23.51	90.24
d) Lead	80.13	71.55
e) Zinc	166.68	148.06
Machinery other than electric	**2131.48**	**2325.00**
a) Power generating machinery	169.83	246.04
b) Agricultural machinery and implements	213.30	228.54
c) Metal working machinery	172.04	202.02
d) Machines for special industries	249.83	257.25
Electrical machinery, apparatus and applances	**566.60**	**828.40**
a) Electrical power machinery and switchgear	247.28	297.20
Transport Equipment	**423.28**	**719.13**
a) Railway vehicles	98.84	179.06
b) Road motor vehicles	193.88	296.00
c) Aircrafts	110.37	222.32
Professional, scientific and controlling instruments, photographic and optical goods, watches and clocks.	212.25	202.35
Total including other items	**13366.73**	**15326.08**

Source : Department of Commercial Intelligence and Statistics, Calcutta.

MICA

Mica is one of the important strategic minerals in the sphere of industry and technical science. India is the largest producer of mica, and meets nearly 70 per cent of the world demand for this mineral. Argentina, U.S.S.R., Peru, Mexico, Columbia Union of South Africa also produce this mineral.

Besides enjoying nearly monopoly as a supplier, India produces the best quality of mica in the world. Brazil is the only country competing with Bihar mica belt in India in marketing block mica of large size and superior quality.

The major mica mining states are Bihar, Rajasthan and Andhra Pradesh. Mica is also developed in Tamil Nadu, Mysore and Kerala in small quantity. Bihar accounts for about 55 per cent of the all India production. The more important part of the Bihar mica belt is along the disected northern edge of Chotanagpur highlands. Production of mica in India was of the order of 17,600 tonnes both during 1968-69 and 1969-70. It, however, declined to 16088 tonnes in 1970-71 due to rise in cost of production and unremunerative prices available to mine owners from the exporters. In order to remedy the situation and making mica production a worthwhile proposition, the Government has been considering reduction in export duty of mica leviable at 40 per cent *ad valorem* to 15 per cent *ad valorem*. The idea is to suitably raise f.a.s. prices without generally increasing the export prices. In fact, with effect from May, 1972, while export duty leviable on fabricated mica has been reduced from 40 per cent *ad valorem* to 10 per cent *ad valorem*, that leviable on mica powder at the rate of 20 per cent has been completely abolished.

Of the several varieties of mica, only two-muscovite (a potash mica) and phlogopite (a magnesium mica) are important in commerce. The most common muscovite occurs in a range of colours from so-called 'ruby' which is more closely a pinkish brown to light and dark green with numerous other shades. Phlogopite, known by the name of 'ambar mica' in the trade, is next to muscovite in commercial importance. The other common mica, biotite is an iron magnesium. Lepidolite (a lithium mica) and rescoelite-(a vanadium mica) are less known and uncommon. Vermicultie is an altered mica and has found recently increased application in manufacture of heat and sound insulating blocks and cements. In the electrical industry, muscovite and phlogopite are used both in the natural state and as a manufactured product termed as 'micanite'.

Mica occurs as books. The average size of books records 2.5 to 5.00 c.m. across, but exceptional book may be as much as metre or more accross. The average thickness of books is generally 2 to 10 c.m. but it may vary upto 30 c.m. or sometime more.

Mica and mica products are classified into four different categories viz. semi-processed mica, fabricated mica, manufactured mica, and mica-scrap. Natural mica, when sold in the processed stage is in the form of block mica, condenser films and mica splitting. While films are obtained from mica blocks of superior quality, splittings are made completely from inferior quality mica. Amongst splittings, there are book-form splittings, loose splittings and dust loose.

Mica possesses unique combination of flexibility resistance, transparency, low chemical and thermal conductivity, and high de-electric strength which makes this mineral usable in many industries and have diversified applications particularly in electrical and electronic industry. Extensive use of mica is made in spark plugs for high power motors, transformers, radio condensors and in radar circuits, filaments in radio tube receiving sets, filter in television sets, insulation in generators or motors which run at high temperature, insulation commutators, capacitors and in the electronic industry. It is also now used as insulating material in missiles, space rockets, telecommunication etc.

Export of mica and mica pruducts touched a high level of 43439 tonnes valued at Rs. 190.80 million in 1965-66. The exports, however, declined to 18844 tonnes (Rs. 159.50 million) in 1966-67, 23031 tonnes (Rs. 161.8 million) in 1967-68, and 20959 tonnes (Rs. 155 million) in 1968-69. This declining trend was arrested in 1969-70 when these exports picked up at 24262 tonnes worth Rs. 174.47 million. In the following year (1970-71) exports maintained more or less the same level at 24218.20 tonnes valued at about Rs. 170 million. During the first three quarters of 1971-72, the export earning was of the order of Rs. 155 million (18040 tonnes). For the entire year of 1971-72 the export earning is provisionally estimated at Rs. 208 million. Almost all the world's importers of mica buy mica splittings, waste, block etc. from India.

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As judged from countrywise exports from India during 1970-71, and 1971-72 (up to September 1972), U.S.S.R., U.S.A., Japan, and U. K. were the major buyers in order of the value of supplies made to them. Czehoslovakia, Poland, Hungary, German Democratic Republic, Rumania, France, Netherlands, West Germany and Hong Kong were the other important buyers.

Though the overall exports of mica industry have been appreciable, the exports of mica products so far have not been significant. The export value of mica products during 1970-71, for example, accounted for a total of about Rs. 15.93 million (177.2 tonnes) against total mica export earning of about Rs. 170 million (24,218.20 tonnes). For the first two quarters of 1971-72, share of exports of mica products was limited to about Rs. 1052 million as against an overall export of the industry to the tune of Rs. 81.32 million.

Lately more and more stress is being laid to the export of mannufactured mica in order to fetch better unit prices and earn more foreign exchange. Accordingly an important consumer of micanite has been allowed to set up its own plant for micanite. For this purpose the unit has already secured import license for the requisite plant and machinery. This unit is expected not only to meet the requirements of micanite for its own production of commutaters but export 60 per cent of its production of micanite. Another plant is being set up for manufadture of mica bricks for supply to steel plants in the country. These bricks were being imported hitherto. A foreign collaboration project for the manufacture of silvered mica entirely for export is also being processed. Vigorous efforts at import substitution and promotion of export of fabricated and manufactured mica products are continuing.

All exports of mica are subject to compulsory preshipment inspection to ensure overseas supplies conforming to qualities and grades of mica purchased by the foreign consumers.

Till lately exports of mica were allowed freely to all destinations subject to price control enforced by the Indian Government. However, with a view to envigorate the mica industry and in pursuance of the policy of state trading, the export trade of mica (excepting fabricated and manufactured mica) has been canalised through the Minerals and Metals Trading Corporation of India (MMTC) with effect from January 24, 1972. Under the scheme, the Corporation in addition to being the exporting agency for established traders will also assist small exporters/mine-owners in their production and export efforts. ☐

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EXPORT ORDERS FOR HEAVY ELECTRICAL EQUIPMENT

The Heavy Electricals India Limited, P. O. Piplani, Bhopal have to their credit overseas supplies of its products to Ghana, Iraq, Kuwait, Malaysia, Singapore and Arab Republic of Egypt. The equipment that they have successfully exported include transformers, reactors, industrial motors, controlgears and switch gears. They offered to undertake in the export market turnkey projects for sub-station equipment and water supply schemes as also electrics for industrial complexes such as cement plants, rolling mills etc.

Equipped with the most modern machine tools and testing equipment to manufacture all types and sizes of heavy electrical equipment, this multi-plant complex can manufacture almost the entire range of heavy electrical equipment required for generation, transmission and utilization of electric power. Their products are designed and manufactured in line with Indian, British and international standards to meet exacting specifications of various customers. The major accomplishments of the factory include completely equipping and commissioning of three hydro power stations, two thermal power stations and electrics for over 230 diesel electric locomotives. The factory has also manufactured and supplied Main Steam Turbines for propelling Indian Navy's Warships and 1,20,000 KW steam Turbine-Generator. They have also supplied large induction motors for cement mills, large DC motors with controls for winder for a copper project, drives for paper and straw board mills, LT alternator for sugar factories and drives with controls for aluminium project.

Other products built at the factory include over 600 transformers with unit ratings up to 2,50,000 KVA in 220 KV class, over 14,000 units of switchgears with voltages from 3.3 kv to 220 kv and over 1200 industrial machines up to 3000 HP ratings.

Among the jobs on hand at the factory are the manufacture of hydro-generating sets of 1,65,000 KW and Steam Turbines of 2,36,000 KW for a nuclear power station. The Bhopal factory has been striving continuously at indigenisation and has succeeded in bringing down the import content to a level of hardly 20 per cent from 37.3 per cent in 1963-64.

Within about a decade of its existence, the factory has fully developed the expertise and capacity for undertaking complete design, manufacture and supply, installation and commissioning of switchgears and power projects for thermal and hydro-generating stations and complete electrics for industrial complexes like steel and fertilizers plant, machine tool industry, plastics and rubber industry, sugar plants etc.

REPEAT ORDER FOR TRANSFORMER FROM SINGAPORE

To meet the urgent requirements of a foreign customer, a 150 kva 400/208 V transformer was recently airlifted to Singapore. The transformer was required by M/s. Texas Instruments, Inc. Dallas, U.S.A.—the world's leading manufacturers of electronic equipment for their plant at Singapore.

The Indian firm that have succeeded in repeating this urgent order, M/s. Crompton Greavas, 1, Forbes Street, Post Box No. 1277, Bombay-1, accomplished the job by designing, manufacturing and delivering within a month's time. They air-freighted three similar transformers to the same customer in early 1969.

The repeat order came to the Indian firm because of the American company's confidence in Indian technology and ability to design and manufacture high quality transformers with special requirements at short notice. Such urgent orders from Singapore/Malaysia used to be placed on the electrical companies in Japan or Australia.

The Company has executed export orders for a wide range of electrical equipment. They are currently executing a large contract for the establishment of an electric fan factory for the Government of Iraq at Baghdad and will shortly commence shipment of US $ 1 million worth of transformers, switchgears, fans, lamps etc. to Libya where they have won a contract in collaboration with M/s. Star Textiles, 27, Brabourne Road, Calcutta for the complete electrification of a Textile Complex.

EXPORT PERFORMANCE OF DYESTUFFS

M/s. Indian Dyestuffs Industries Limited, Mafatlal House, Backbay Reclamation, Bombay-1 are one of the largest manufacturers in India of vat dyestuffs used in the dyeing of cotton textiles, disperse dyestuff used in dyeing of synthetic fibres, and a wide range of intermediates required in dyestuffs manufacture. The company's export performance was of the order of Rs. 15 million in 1971-72—the highest so far recorded by any single dyestuff manufacturer in India as against Rs. 11.50 million in the preceding year. Their products are directed not only to the developing markets but even to the sophisticated markets like the USA, Japan, Federal Republic of Germany, Switzerland, U.K. and Australia.

Though a recent entrant in the export field, the dyestuff industry has been faring well in the competitive international markets. The varieties of dyestuffs active in the export market are acid dyes, basic dyes and direct, solvent dyes and organic, reactive, vat dyes and other organic synthetic dyes.

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AGARBATTIS ON THE EXPORT FRONT

The export earning from agarbattis has been improving from year to year. It reached a level of Rs. 15 million in 1971-72 as compared to Rs. 12.75 million in 1970-71 and Rs. 10.07 million in 1969-70. Several overseas markets from Africa to America, from Canada to Caribbean and from Europe to the Far East are currently importing large quantities of these perfumed sticks from India.

One single manufacturer in the line, M/s. Mysore Sugandhi Dhoop Factory, Post Box 3178, Bombay-3 were able to export as much as Rs. 2 million worth of agarbattis during 1970-71.

The firm has won top awards for its export performance for the year 1969-70 and 1970-71. To its credit, the firm has introduced an awareness for agarbattis and incense in Western countries. It offers a wide range of incense ranging from enchanting rose, sandalwood and jasmine to fruitty lemon, strawberry etc. as well as other exclusive products.

Yet another firm, M/s. B.B. Aswathiah and Brothers, 193 Nagarathpeth, Bangalore–2 have earned export business for their "Nandi" brand agarbattis in overseas markets including Singapore, Malaysia, Hong Kong, Thailand, Japan, Philippines, as also West Europe, Latin America, and African markets. The firm's total turnover is of the order of Rs. 4.6 million per annum of which nearly one-third is marketed abroad. This is significant as in 1963-64 the ratio of their exports was limited to only about 10 per cent of their total turnover. The firm has been successively winning the State top award as well as the national award for export of agarbattis.

SUGAR DIFFUSER FOR MALAYSIA

For the first time India will be exporting a sugar diffuser. It is to be installed in the cane sugar factory being set up by the State Development Corporation of Negeri Sembilan, Malaysia.

M/s. Larsen & Toubro Ltd., Dougall Road, Ballard Estate, Bombay is undertaking the export and M/s. Phaltan Sugar Works Ltd., 296, Bazargate, Street, Fort, Bombay is providing technical know-how and consultancy to the Malaysian project.

Diffusion is the most advanced development in the manufacture of cane sugar. It ensures higher extraction than is possible through regular milling. The cane sugar diffusers, engineered and fabricated by the Bombay firm have been successfully used by leading sugar mills in India, yielding considerable know-how in diffusion technology.

The Malaysians had set rigid specifications for the diffuser. The order was placed only after an investigation, by a visiting high level Malaysian team, of the manufacturing capabilities and quality control standards in M/s. Laren & Toubro.

CABLES AND WIRES IN EXPORT TRADE

Overseas demand for Indian cables and wires continued to be good in recent years. The export earning of cable and wire industry improved to Rs. 113.2 million in 1970-71 from Rs. 111.2 million in 1969-70, registering a marginal increase of Rs. 2 million.

During 1969-70 and 1970-71 the major importing countries for insulated cables and wires were U.S.S.R., Iran, Qatar, Sri Lanka, Federal Republic of Germany, Argentina while for bare aluminium conductors U.S.S.R., Arab Republic of Egypt, Sudan, Tanzania, Kuwait, Iran and Thailand were the main destinations. Bare copper conductors were mostly imported by Kuwait, Iran, Singapore and Hong Kong.

M/s. Cable Corporation of India Limited, Laxmi Building, 6, Ballard Road, Bombay-1, one of the leading exporters of cables and wires succeded in exporting cables and wires to the tune of Rs. 11.6 million during the year 1971.

The Bombay firm has an installed capacity of 1,600 km for paper insulated power cables and 62,300 km of other cables and wires. Their production during the year was recorded at 352 km of paper and 11,569 km of other cables and wires

The Indian cables and wires industry is now in a position to use indigenous expertise. ACSR, AAC conductors, thicker sizes of enamelled wires, paper covered wires and strips, power cables up to 33 KV, PVC power cables and PVC/VIR cables are manufactured indigenously. Imports are restricted only to a few special types of cables and wires.

During 1970, the production of various cables and wires was 4,23,000 km of VIR and PVC cables, 65,000 tonnes for ACSR and AAC conductors, 2403 km for paper insulated power cables and 14,000 km for PVC power cables.

UPTREND IN EXPORT OF READYMADE GARMENTS

Readymade garment industry is one of the growing industries in India. One of the units in the line, M/s. Binny Limited, No. 7, Armenian Street, Post Box No. 66, Madras recorded a rise of Rs. 0.76 million in exports of readymade garments during 1971 over their export performance in 1970. Their foreign exchange earnings during the year fetched Rs. 3.1 million as against Rs. 2.26 million earned in the preceding year.

The overall exports of clothing (excepting fur clothing) have recorded a rise of Rs. 95.93 million during 1970-71 over the exports of 1969-70. As against Rs. 216.04 million in 1969-70, the exports during 1970-71 netted Rs. 301.97 million in 1970-71. This represents an increase of 45 per cent.

The range of products exported during the year included rain coats for men, cotton coats, cotton trousers for men and boys, cotton outer garments for men, outer garments of wool for men, outer garments of silk for men, cotton trousers for girls, cotton blouses, cotton play suits, gowns for girls, cotton dresses for girls, outer garments of silk for women, other textile dresses for girls, cotton shirts; cotton T. shirts, cotton underwears for men, handkerchiefs, cotton bedsheets, cotton shawls, man-made fibre shawls, silk shawls, wool shawls, ties and bows, collar cuffs, cotton brassiers, socks, gloves and other clothing accessories.

U.S.A., Czechoslovakia, U.S.S.R., German Democratic Republic, U.K., Sweden, and Libya were the principal markets for these products.

During the first 10 months of 1971-72 (April 71 to January 72) the exports fetched Rs. 277.97 million as compared to Rs. 251.21 million in the preceding year, recording a rise of Rs. 26.76 million.

During 1971-72 (April 71 — January 72) among the export varieties, cotton trousers fetched Rs. 44.39 million and shirts Rs. 26.05 million. The exports of other varieties were: outer garments Rs. 35.21 million, dresses for girls Rs. 22.7 million, under garments Rs. 10.78 million, blouses Rs. 5.81 million, nightwear Rs. 1.28 million, dressing gowns Rs. 1.37 million, handkerchiefs Rs. 6.66 million, shawls and scarves Rs. 11.72 million, clothing accessories Rs. 4.6 million and ties and bows Rs. 5.5 million.

The principal export destinations were : U.S.S.R., U.K., Sweden and U.S.A.

EXPORT PERFORMANCE AND POTENTIAL

BASIC CHEMICALS AND PHARMACEUTICALS IN EXPORT MARKETS

The export earnings of basic chemicals, pharmaceuticals and allied products have recorded an estimated level of Rs. 350 million during 1971-72. Drugs, pharmaceuticals and fine chemicals including medicinal caster oil earned Rs. 99 million; dyes, intermediates, alcohol, coal-tar, chemicals Rs. 47 million; inorganic and organic chemicals including agro-chemicals Rs. 53 million; glycerine soaps, cosmetics and toiletries including processed talc Rs. 36 million; crude drugs, essential oil Rs. 40 million and aggarbattis Rs. 15 million.

The Basic Chemicals, Pharmaceuticals, Soap Export Promotion Council, Bombay have recently presented awards to leading exporters in the line in recognition of their outstanding export performance. The award winners are : Indian Dyestuff Industries Limited, Bombay; Merck Sharp and Dhome of India Limited, Bombay; Atul Products Limited, Bulsar; The Standard Mills Company Limited, Bombay; The Tata Oil Mills Company Limited, Bombay; Indexport Limited, Bombay; Mysore Sugandhi Dhoop Factory Private Limited, Bombay; Chemco Supply Corporation, Bombay; Eupharma Laboratories, Bombay; Atic Industries Limited, Bombay; The Swadeshi Chemicals Private Limited, Bombay; Nanoomal Issardas Motiwala, Bombay and B. V. Aswathiah and Bros. (Regd), Bangalore.

SEWING MACHINE EXPORTS UP

The sewing machine exports are estimated to have nearly trebled to Rs. 4.5 million in 1971-72 as compared to Rs. 1.6 million in the preceding year. The export target for 1972-73 has been fixed at Rs. 5 million worth of machines by the Engineeering Export Promotion Council, 14/1B, Ezra Street, Calcutta.

The manufacturers in the line have been exporting complete sewing machines and sewing machine parts to a large number of Asian, Middle East and Far Eastern countries. In spite of keen competition, Indian sewing machines are also exported to developed countries like U. K., U.S.A. and West Germany. The demand from advanced countries is for special automatic and zigzag machines. There is also good demand for sophisticated types of sewing machines and critical components and parts from Japan.

The industry is also in a position to provide technical know-how and supply machinery for setting up joint ventures abroad. The proposals of one of the major units, for setting up joint ventures for the manufacture of sewing machines in Ceylon, Malaysia and Singapore have been approved by the Government and the venture in Ceylon has been completed and the unit has started production.

The production of the industry has also made notable improvement over the years. From a production of about 33,000 numbers in the beginning of First Plan, the production reached a level of about 4,00,000 numbers in 1969-70. There was, however, a sharp fall in production in 1971 when only 1,77,961 machines could be produced due to prolonged strike in the major units. Production again picked up in 1971 when it reached a level of 3,37,632 numbers. Currently, there are five units manufacturing complete sewing machines in the organised sector with a total installed capacity of 4,93,000 numbers per annum.

The principal machinery required in the manufacture of sewing machines are special purpose hydraulically and mechanically operated milling machines, sensitive drilling machines, special purpose tapping machines, reaming machines, shaping machines, lapping machines centre lathes, cylindrical grinding and surface grinding machines etc. In addition, foundry equipment for casting arms and beds are also required. Most of these equipment are available indigenously. The import of raw materials required by the industry has also been gradually reduced in view of their indigenous availability.

The industry which has a firm base now has established a good reputation for quality products. The Indian Standards Institution has already formulated several standards for sewing machines and parts and the products of the industry are comparable to any produced in the industrially advanced countries.

UPTREND IN EXPORTS OF NON-METALLIC MINERAL MANUFACTURES

India's exports of non-metallic mineral manufactures recorded a sharp increase of Rs. 48.35 million in the first ten months of 1971-72 (April 1971–January 1972) compared to the corresponding period of the preceding year. The exports during the first ten months of 1971-72 netted Rs. 480.60 million as against Rs. 402.26 million in the corresponding period of 1970-71 registering about 12 per cent increase in the export trade.

The exports during the period comprised : pearls and precious and semi-precious stones (worked or unworked); mineral manufactures; lime, cement and fabricated building materials (except glass and clay materials); clay construction materials and refractory construction materials; glass; glassware and pottery.

A substantial rise was recorded in the exports of pearls and precious and semi-precious stones and mineral manufactures. The export figures for pearls and precious and semi precious stones for the first ten months' period of 1970-71 and 1971-72 were Rs. 346.78 million and Rs. 422.28 million and for mineral manufactures Rs. 17.69 million and Rs. 23.28 million. In fact, these two categories of items in the line have substantially compensated the marginal fall in exports of line, cement and fabricated building materials, glass, glassware, pottery and clay construction materials and refractory construction materials. During the first ten months of 1970-71 and 1971-72 the export figures for these items were: Rs. 21.77 million and Rs. 21.25 million in respect of lime, cement and fabricated building materials; Rs. 5.50 million and Rs. 5.15 million for glass; Rs. 7.97 million and Rs. 7.13 million for glassware; and Rs. 1,88,000 and Rs. 1,49,180 in respect of pottery.

Clay construction materials and refractory construction materials was the only field of export in this category which recorded sharp decline from Rs. 2.35 million to Rs. 1.36 million.

In the category of pearls and precious and semi-precious stones (worked or unworked) the major importing countries were USA, Belgium, Australia, Hong Kong, Federal Republic of Germany, Israel, Japan, Netherlands, Malaysia, Singapore, U.K., France, U.S.S.R., Lebanon, Switzerland and Nigeria. For mineral manufactures, U.K. was the main importing country. Japan, Iran, U.S.A., China Republic, France, Federal Republic of Germany, U.S.S.R., Australia, Netherlands, Singapore and Iran emerged as other important buyers.

For clay construction materials and refractory construction materials, Arab Republic of Egypt was the major destination followed by Nepal, Ceylon, Sudan and Kenya. Lime, cement, fabricated building materials were mainly directed to Nepal and Muscat. Ceylon, Netherlands, Indonesia, Abu Dhabi, Dubai, Malaysia, Sudan were the other important markets. In the category of glass, Mauritius, Malaysia, Sudan, Indonesia, Iran, Iraq, Kenya, U.S.A. and Singapore were the major destinations while for glassware, Nepal, Dubai, Philippines, Australia, U.S.S.R. and U.S.A. emerged as main buyers. U.K., Nepal, Uganda and Zambia were the prominent markets for pottery.

SPICES ON THE EXPORT FRONT

India is one of the biggest spices exporting countries in the world. There is a growing demand for Indian spices in the overseas countries. During 1970-71 exports of spices reached a total of 46,373 tonnes valued at Rs. 378.6 million as against 43,975 tonnes valued at Rs. 344 million in the preceding year. For the first ten months of 1971-72, the export earning from spices amounted to Rs. 281.26 million.

The exports in 1970-71 were an all-time record in terms of value cardamom, ginger, turmeric, curry powder, celery seed were the spices which registered the records. Chillies, cumin seed, fennel seed were items with substantial rise during the year compared to 1969-70. Exports of pepper, fenugreek seed, garlic and cassia during 1970-71 were not, however, up to the level of 1969-70. India has, therefore, lately entered into an agreement with Indonesia and Malaysia, the other two major pepper producing countries, to set up a "pepper community" by coordinating their efforts towards research on production, new uses of pepper and stimulating consumption in traditional and new markets.

Exports of cardamom have shown rise, both, in quantity and value during 1970-71 compared to 1969-70. In 1970-71, exports were of the order of 1704 tonnes valued at Rs. 109.4 million as compared to 1229 tonnes, valued at Rs. 90.2 million exported during 1969-70. Saudi Arabia, Sweden, Finland, W. Germany, Kuwait, U.S.S.R., Baharin, U. K., Afghanistan etc., are some importing consuming countries of Indian cardamom.

During 1970-71, chillies exports too were higher both in terms of quantity and value. The relative figures are 2,083 tonnes at Rs. 11 million in 1970-71, as against 2,022 tonnes at Rs. 9.1 million in 1969-70. There was some fall in India's exports to Ceylon, which is the major importer of Indian chillies. However, lately Indian Chillies have entered into new markets like U.S.S.R., U.S.A., G.D.R., Belgium, France and Philippines.

Ginger exports were substantially higher in 1970-71 with a turnover of 3,183 tonnes valued at Rs. 26 million compared to 1,223 tonnes, valued at Rs. 12.3 million exported during 1969-70. Middle East countries are the most important region accounting for about 80 per cent of total exports.

Exports of turmeric have registered an all-time record in earnings during 1970-71, breaking the earlier record in 1969-70, with an export of 10,621 tonnes at Rs. 36.7 million compared to 7,026 tonnes at Rs. 36.2 million in 1969-70.

About 70 countries of the world import Indian turmeric. Important among them are the Middle East Zone, U.S.A., Japan, Ceylon and Singapore.

It is interesting to note that exports of curry powder during 1970-71 were an all-time record. 1712 tonnes valued at Rs. 7.5 million were the exported as against the 1969-70 export of 1230 tonnes valued at Rs. 6.2 million. U.K. was the principal buyer of Indian curry powder, followed by Australia.

Among other spices, exports of celery seed registered an all-time record during 1970-71. Exports of cumin seed and fennel seed also showed increase during 1970-71.

With a view to ensure standard quality of spices to the buyers in overseas countries, cardamom, chillies, black pepper, celery seed, fenugreek and celery seed, garlic, ginger and turmeric etc. have been brought under the compulsory quality control and pre-shipment inspection.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

INDIA'S INDUSTRIAL TRANSFORMATION

From a stage of low industrial activity to the present pattern of growth and diversification, Indian economy has traversed a long way over the last 25 years. Today, it happens to be the eighth foremost industrial nation in the world. With a broad diversified and substantial industrial base, India is in a position to even export manufactured goods and establish joint industrial ventures abroad.

The country's organised industry contributed meagre 5 to 6 per cent to national income in 1950 and its total labour force was hardly about 3 million. In 1967-68, its contribution to national income rose to 9 to 10 per cent and the total labour force to 4.5 million. Between 1951 and 1968, the index of industrial production improved by 194 per cent.

While the index of industrial production nearly doubled between 1951 and 1968, the index for machinery rose nearly six-fold and that for intermediate goods four-fold. A definite direction was given thereafter to the country's growth pattern not only in respect of production of machinery industries, but basic and heavy industries including steel, heavy engineering, aeronautics, ship building, fertilizers and petroleum refinery.

The Industrial Policy Resolution (1948-1956) laid down the broad pattern of Industrial development. The industries of national importance were brought within the purview of the Central Government. A system of industrial licensing was instituted for allocation of scarce physical and financial resources in the desired direction.

The growth of a diversified engineering and chemical industry in the country has been noteworthy. The food processing and textile industries recorded expansion, while the spurt in the index of industrial production in other sectors has been more impressive. Chemicals including fertilizers and basic metals including steel improved four-fold, transport equipment and electricity seven-fold, electrical machinery nine-fold, and other machinery eleven-fold and petroleum twenty-fold.

The strength that the industrial base of the economy has acquired is duly reflected in its external account. The continuous efforts towards import substitution have helped indigenous development of a surprising range of machinery and heavy equipment including turbines, generators and steel mills. In several industries such as for the manufacture of cement machinery, boilers, sugar machinery, chemical machinery, drilling equipment, gear and gear boxes, cable core wire for welding electrodes, automobiles, bicycles and typewriters, imports have either been eliminated altogether or have been reduced to the minimum. The country's export trade reveals a striking shift in its composition by the spurt in non-traditional exports, particularly of engineering products. Before the 60's, engineering exports were merely Rs. 30 million. During 1970-71, they exceeded Rs. 1150 million. These exports now include not only light engineering goods like sewing machines or electric fans, but more complicated engineering products as well as heavy equipment like boilers. For example, the high pressure boiler plant of the Bharat Heavy Electricals, Tiruchi, secured an order for 3 numbers of 120 M.W. boilers at a value of Rs. 93 million in the face of stiff competition from reputed international suppliers.

TWENTY-FIVE YEARS OF ECONOMIC PROGRESS

Over the last 25 years of Independence, the Indian economy has witnessed an allround economic progress. Its national income has doubled. Notwithstanding an ever rising rate of population growth, the econmic output of goods and services per capita has improved substantially. Significant structural changes and techno-managerial sophistication are noticeable. In the field of industry, production has more than trebled. A surprising range of products from simple consumer goods to basic intermediates and complicated industrial equipment is now on production stream. Near self-sufficiency has been attained in respect of railway equipment, road transport material and communication equipment. Machinery required by traditional industries such as textile, sugar and cement is also manufactured in sizeable quantities.

Since the beginning of the Plan era (1951), metal production has quadrupled. There has been a more than 15-fold increase in the production of industrial machinery. Electric power generation rose by 10 times. Visible expansion in the production of chemicals, fertilizers, petroleum products, etc. has been registered. These and other features like the development of a metals-engineering complexes, rise in power output and improvement in the manufacture of intermediates have helped set up a solid base for the future of industrial progress.

While the share of traditional industries like sugar, vanaspati, jute, cotton textiles, tea processing and tobacco manufactures accounted for nearly 2/3rds of industrial output in 1947, today the newer industries contribute to the greater part of the production of manufactured goods. Alongside, technical know-how and managerial skills have kept pace.

The role of public sector in the context of India's industrial development is un-doubted. State initiative in setting up industrial capacity for steel making, heavy industrial and electrical equipment, machine building, petroleum and petroleum products as well as mining has been considerable. The share of public sector undertakings in the total capital investment was only 3 per cent before the Plan era while it stands at 45 per cent (March, 1971).

In addition to the industrial progress accomplished, the Indian economy has advanced in respect of agricultural production too. The production of agricultural commodities including food grains rose by more than 80 per cent in the 22-year period ending 1970-71. As against 55 million tonnes in 1950-51, foodgrains output hit the level of nearly 108 million tonnes in 1970-71. Imports of foodgrains which reached the alarming level of 10.3 million tonnes in 1966 was brought down to 3.9 tonnes in 1969 and now these imports are banned.

In tune with India's basic objective of self-reliance, the major burden of developmental investment is met from indigenous resources. In fact, most of the external assistance so far received has been in the form of interest bearing credits; free foreign aid never exceeded 30 per cent for an overall industrial outlay in any year. In the Fourth Plan period not more than 8 per cent of investment outlay is expected to be financed through net inflow of external resources. Today, the inflow has become marginal while production investment as a proportion of national income has more than doubled.

The country's external payments position has also improved noticeably, By the mid sixties, trade deficit touched record levels and foreign exchange reserves were as low as $ 524 million. Thereafter, however, the deficit narrowed down continuously and classic reserves (gold and foreign exchange) rose to $ 911 million by 1971-72. This was notwithstanding the fact that $450 million was repaid over the last few years to wipe off outstanding short term to the International Monetary Fund.

This, in brief, has been the story of progress in free India.

NUCLEAR POWER PROGRAMME

A RETROSPECT

The growth of Atomic energy in India during the last two and a half decades can be classified into three phases. The formative phase (1944-1954) involved the establishment of adequate technical man-power. The second phase (1954-1962) was the growth of atomic energy establishment—the Bhabha Atomic Research Centre (BARC), Trombay, Bombay. The Centre has by now turned out to be a major scientific establishment in the country in all research and development work connected with nuclear technology. In this centre are situated three reactors, APSARA (1 M.W.), CIRUS (40 M.W.) and ZERLINA (100 M.W.). The third phase that commensed around 1962 has come to yield dividends in the research and developmental programmes already undertaken.

A full-fledged nuclear power station with an installed capacity of 420 MWe is now in operation at Tarapore (Maharashtra). A second nuclear power station with an installed capacity of about 430 MWe at Ranapratapsagar (Rajasthan). A third station of 470 MWe is also under construction at Kalpakkam (Tamil Nadu). The reactors of the Kalpakkam Station, though similar in concept and design to those of the Rajasthan Station, are being modified to suit Indian conditions. This Station will be 80 per cent indigenous. Indian know-how and expertise are being used to the maximum extent with a view to build up an indigenous capability for the construction and commissioning of future reactors.

Already a chain of industrial establishments based on the technology developed at Trombay has become operational during the third phase. Notable examples are the Electronics Corporation of India, Hyderabad; Uranium Corporation of India, Jaduguda; Nuclear Fuel Complex, Hyderabad; a Power Reactor Fuel Re-processing Plant, Tarapore and Heavy Water Plants at Kota (Baroda) and Tuticorin.

The successful commissioning of a zero energy fast reactor facility at the Bhabha Atomic Research Centre in May, 1970, was another milestone in India's nuclear power programme. This reactor is a first step towards the development of fast breeder reactors. In the first stage fast breeders, thorium—which is available in vast quantities in the country—will be converted into a useful isotope of uranium, uranium-233. In order to develop the fast breeder technology, a Reactor Research Centre is also taking shape at Kalpakkam. This Centre will initially have as its major facilities a 15 MWe fast breeder test reactor and a pulsed fast reactor for research and development studies.

Being aware of the basic limitations on capital, the Indian nuclear energy programme has taken adequate precautions even from the beginning to build up necessary infra-structure. A programme has accordingly developed essential technical man-power as also advanced centres not only capable of providing employment opportunities, but acting as catalysts for the general techno-scientific development of the economy.

ALUMINA CEMENT AND IMPORT SUBSTITUTION

The Inventions Promotion Board have recently presented an award to M/s. Ishwar Industries Limited, P. O. Ishwar Nagar, New Delhi for developing Refcem Alumina, Cement.

The firm is amongst the leading manfacturers of refractories in India and a pioneer in the field of Aluminous Cements which are mono-calcium aluminates with hydraulic setting properties populary known as Refcem Cements,

Refcem-15 Alumina Cement is manufactured by the firm by melting process. This slow setting but rapid hardening cement is used for several applications, primarily for making refractory castables. It shapes all refractories for blast furnaces, coke ovens, laddle lid lining, soaking pits, boiler house refractories etc. Refractory concretes made of the Refcem-15 Alumina Cement becomes resistant to corrosion, high temperature, thermal shocks, volume change and abrasion.

Till late sixties India has been importing this cement to a tune of about Rs. 2 million. Besides its direct import, many types of special castables were also imported. The development of this cement is expected to save the country to-day about Rs. 4 million in foreign exchange.

Refcem-15 Alumina Cement has also started earning foreign exchange through export. The above firm made a beginning in 1970 with their export of castable refractories to Iran. Recently they have exported nearly 250 tonnes of Refcem-15 Alumina Cement for use in the erection of Shiraz Refinery in Iran against an order from M/s. Snam Progetti of Milano (Italy), the international reputed erectors of Refineries.

QUALITY CONTROL FOR COIR YARN AND MATTINGS

Compulsory quality control and preshipment schemes have been recently extended to non-baled coir yarn and coir mattings.

The yarn has come under the purview of these schemes with effect from June 3, 1972 and coir mattings with effect from June 20, 1972.

Coir yarn constitutes the major export item of coir industry, accounting for 64 per cent of the industry's exports in 1970-71. During the same year coir door mats and mattings accounted for a little over 27 per cent, Nearly 5,21,200 quintals of coir yarn and coir products valued at Rs. 138.25 million were exported in 1970-71. This included 3,33,471 quintals of coir yarn at Rs. 76.45 million and 1,42,771 quintals of coir mats and mattings at Rs. 47.65 million.

The East and West European countries like Belgium, Bulgaria, Czechoslovakia, France, German Democratic Republic, Italy, Natherlands, Poland, Rumania, U. K., U.S.A. and Yugoslavia are the main markets for coir yarn. The main export destinations for coir mats and mattings are Australia, Canada, Japan and U.S.A., in addition to East and West European markets.

Besides coir and jute products, the compulsory quality control and preshipment schemes already covers a number of items under the category of food and agricultural products, engineering products minerals and ores, chemical and allied products, and miscellaneous items like leather footwear, human hair etc.

PROGRESS IN INDIA'S DEFENCE PRODUCTION

From bolt action rifles, guns and ammunition of odd vintage to the production of the most modern frigate equipped with missiles and a helicopter, supersonic aircraft armed with air to air missiles, radar-controlled anti-aircraft guns and the Vijayanta Tank fitted with infra-red equipment is the fascinating story of the defence production effort in India. During the last 25 years, the country has achieved a large measure of self-sufficiency in the production of weapons and equipment. India is completely self-sufficient in small arms including semi-automatic rifles, light artillery, a wide variety of ammunition, chemicals, parachutes, textiles, vehicles and general stores.

The performance of Indian built Gnats, Maruts (HF-24), MiG-21s, L-70 anti-aircraft guns, Vijayanta Tanks and other weapons has given a new sense of confidence to the nation.

At the dawn of independence, 17 ordance factories, conceived as subsidiaries of the Royal Ordnance Factories, had limited capacity and were mostly manufacturing general store items and a few old vintage arms like bolt action rifle and some ammunition. Thirteen new factories including the one manufacturing Vijayanta Tanks have been established. Ten of these have come up since 1962 in a bid to achieve self-sufficiency in the defence sector.

Production in ordnance and departmental factories has risen from Rs. 410 million in 1961-62 to Rs. 1380 in 1971-72. The wide range of items manufactured include semi-automatic rifles, carbine, mountain guns, 106 mm R.C.L. Guns, L-70 radar-controlled anti-aircraft guns, 81 mm and 120 mm mortars, Vijayanta Tanks and connected ammunition; explosives and components for the Navy; and cannon ammunition and rocket for the Air Force. The factories also manufacture clothing and general equipment including parachutes and light-metal bridging equipment.

In addition, eight public sector undertakings have been established. In 1971-72, these public sector undertakings achieved a record production of Rs. 1760 million.

In addition to the aircraft it is already producing, M/s. Hindustan, Aeronautics has made arrangements for the production of an improved version of MiG-21 called MiG-21M. The delivery of this aircraft to the Air Force will commence next year. M/s. Mazagon Dock and Garden Reach Workshops are engaged in manufacturing frigates, dredgers, tugs and other equipment for the Navy. The first Leander Class Frigate, INS Nilgiri, built by Mazagon Dock, was commissioned into the Navy in June, 1972. Five more frigates will be produced by the Mazagon Dock by 1978, one each year.

Heavy earth moving equipment such as dozers, scrapers, dumpers and motor graders required by the Armed Forces are being manufactured by M/s. Bharat Earth Movers, Mal Road, Hindustan Aircraft Post, Bangalore-17. M/s. Bharat Electronics, Jalahalli P. O., Bangalore-13, manufactures professional electronic equipment such as transmitters, receivers, trans-receivers and radars for the Defence Services and for civil users. Anti-tank missiles for the Army are being assembled at the Bharat Dynamics Ltd., a newly set-up public sector undertaking.

In order to achieve the maximum possible self-sufficiency and to reduce dependence on imports, efforts to manufacture indigenously most of the items have yielded promising results. The indigenous content of HF-24 has reached 70 per cent and that of the MiG-21 aircraft produced from raw materials about 60 per cent. Production of various aircraft accessories by HAL will further help in reducing the dependence on imports. In the case of Bharat Electronics, the overall indigenous content is expected to increase to 75 per cent in 1972-73 and to 82 per cent 1973-74. In the Bharat Earth Movers, the indigenous content of most of the heavy earth moving equipment varies between 60 and 64 per cent. This is expected to improve to 70 to 75 per cent during 1972-73 and to 85 per cent in the subsequent two years. The indigenous content of the Vijayanta Tank, built at the Heavy Vehicles Factory has reached 68 per cent and is expected to reach 85 per cent in a few years.

With the increasing demand for special steels and alloys for the manufacture of sophisticated weapons, Government have sanctioned a special steel plant project. The plant is expected to produce 68 varieties of steels and alloys. These raw materials are imported at present. A new propellant factory with the latest manufacturing techniques has also been planned.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

ETCHING OF ALUMINIUM FOILS

A process for etching of aluminum foils has been developed at the Central Electrochemical Research Institute (CELRI), Karaikudi (Tamil Nadu).

The etched aluminium foils are used for the manufacture of aluminium polarised electrolytic capacitors. The capacitors of various working voltage capacitance ratings are used in all types of electronic measuring instruments/equipments, radio, T. V. sets etc. Presently, a part of the demand for etched foils is met by imports.

The existing practice is to treat the foil anodically in soluble chloride solution using pure A. C. or A. C. super imposed d. c. This suffers from the draw back that etching in conventional sodium chloride electrolytic using pure d.c. does not give etch ratio of more than 12 at 30 volts A. C. super imposed DC involves the of a. c. having a frequency of more than 130 cycles per second and having the high degree of pulsation. Therefore special generators for a. c. source as well as suitable filters and chocks etc. are needed. Similarly, special type of equipment are required to produce square wave or pulsating d. c. current. They are costly and probably may have to be imported, if not available indigenously.

To obviate the disadvantages present in the existing processes, the process developed by the CELRI provides for formulation of etching aluminium and aluminium alloy with pure d. c. to obtain desired high etch radio in the order of about 38 to 30 volts. The new process consists of electrochemical etching of aluminium and its alloy in a bath which comprises of a soluble chloride like sodium chloride or hydrochloric acid solution.

The process has been studied on pilot plant designed for process 4" wide aluminium foil rolls. The pilot plant is still in operation.

Super pure and commercial grade aluminium foil, etching chemicals, sodium hydroxide, nitric acid, hydrochloric acid are the main raw materials needed in the process. These raw materials except for super pure aluminium are indigenously available.

The major equipment required is Rectifier for etching, D. C. motor, Reduction gear for the above D. C. motor, Constant Speed arrangement, Motor with reduction gear, Centrifugal pump, Contact roller, Etched foil drier, Silica immerson heater, Rectifier for DC Motor, Deioniser unit, Copper bushbar, cathode mounting assembly, stainless steel tanks, M. S. Tanks, Aluminium tanks and polythene tank. All the items are either available indigenously or can be fabricated indigenonsly.

The total outlay for setting up a plant of 7.23 tonnes of plain foil per annum has been estimated at Rs. 2.94 lakhs.

GLAZING LACQUER

The Central Leather Research Institute has developed a process for production of Glazing Lacquer (R).

Glazing Lacquer (R) is a glazeable nitrocellulos lacquer that imparts a high gloss to finished lizard skins and morocco leathers. This lacquer also imparts water resistance to the finish unlike protein finishes which are being used at present. The demand for the product is estimated at 5 to 10 tonnes per annum.

Work on this process has been carried out at the Central Leather Research Institute on a pilot plant scale and the product obtained has been successfully tried in the Institute's pilot tannery.

The process is a simple one. It will be more economical if it is taken up as an adjunct to production of lacquers and lacquer emulsions. The recommended capacity of the facility is ten tonnes of glazing lacquer per year.

Stainless steel vessels, wooden hand paddles and a strierarer are the main items of equipment required. All these are indigenously available. However, of the raw materials, nitrocellulose and solvents, about one tonnes of nitrocellulose will have to be procured through import.

PROCESS FOR THIOGLYCOLLIC ACID

A process for the production of thioglycollic acid from indigenous raw material has been developed by the National Chemical Laboratory (NCL) Poona.

Thioglycollic acid is used in cosmetics in hair fixative. It is also used as an essential catalyst for Bishenol A preparation. The country's annual requirement of this chemical has been estimated at about 50-60 tonnes. The process essentially consists of 2 stages (i) preparation of sodium salt of monochloroacetic acid and its reaction with sodium thiouslphate and (ii) hydrolysis of the intermediate product. The resultant mixture is treated with zinc dust and extracted with suitable solvent. Thioglycollic acid is obtained on distillation of the mixture.

The raw materials required for the manufacture of thioglycollic acid are monochloroacetic acid, sodium hydroxide, sodium thiosulphate, sulphuric acid, zinc dust, make up ether or isopropylether or butyl acetate or trichloroethane or chloroform and calcium chloride (anhydrous). All are indigenously available.

The essential items of plant and machinery are glass lined/S.S. vessel, steam jacket and vacuum distillation unit. All of these can be fabricated in the country.

NCL has worked out the process on 1 kg. batch scale. The product has been analysed in the laboratory and found to conform to standard.

PROCESS FOR GREASE-PROOF PAPER AND GLASSINE

A process for the manufacture of grease-proof and glassine papers has been recently developed by the Regional Research Laboratory (RRL), Jorhat.

The grease-proof paper has wide applications in packaging of food and machinery parts. It is used extensively for packaging food because resistance to the passage of grease is of vital importance. Similarly, machinery parts can be protected against rust or damp air by packing them in this paper.

Currently, the major share of the country's requirement of this paper is met through imports. Under the process developed by the RRL, industrial waste material, alkali, chlorine, sodium peroxide etc. constitute the main raw materials required for the manufacture of grease proof paper and glassine paper. All these are available indigenously. The required plant and machinery can also be fabricated indigenously.

NEW HYBRID CANE VARIETIES

The Jullundur Regional Sugarcane Research Station of the Punjab Agricultural University (PAU), Ludhiana has developed three new high-yielding varieties of sugarcane.

The three varieties—S. 449/64, S. 480/64 and CO-62399 will be cultivated after the current evaluation trials which are underway at sugar factories and at farms and fields of progressive farmers.

Of these, S. 449/64 is an early-maturing variety with very high sugar content. Normally it matures in the first week of November. The variety contains about 16-17 per cent of sucrose in juice and gives a cane yield of 700 quintals per hectare.

S. 480/64 is a mid season, highly frost-resistant varieties. Though it is at part in cane yield with the present varieties, it has much higher sucrose content. This is the most promising variety for areas where frost damage to cane crop is serious. It has an average cane yield of 750-800 quintals per hectare with 15-16 per cent sucrose content.

CO-62399 is a late maturing variety, highly resistant to red-rot disease. Its yield is equal to that of the already approved varieties CO-J-46 and COH-1148.

The red-rot is a serious problem to cane cultivators in Punjab. CO-62399 will thus greatly help in checking the spread of the disease. The average cane yield of this variety is 800-850 quintals per hectere with 16-17 per cent sucrose in juice.

EXPORT TRENDS OF INDIA'S ENGINEERING PRODUCTS

Item	Export 1970-71	Export (estimated) 1971-72
Auto and Auto Parts:	**21.27**	**14.50**
(i) Complete Automobile	14.22	7.50
(ii) Auto Parts & Accessories	7.05	7.00
Industrial Plant and Machinery:	**10.61**	**12.75**
(i) Textile Machinery incl. Jute & Knitting Machines	5.96	6.00
(ii) Paper, Cement, Chemical & Sugar Machinery	0.87	2.60
(iii) Tea, Oil & Other food Processing Machinery	1.12	0.65
(iv) Industrial Machinery Other (including Boilers, Excavators etc.)	2.66	3.50
Electric Wires & Cables	11.32	10.50
Rly. Wagons, Coaches & Parts	2.11	7.00
M. S. Pipes, Tubes & Fittings	7.18	7.50
Bicycles & parts	6.91	8.50
Steel Structurals	**6.17**	**7.40**
(i) Transmission Line Towers	2.87	4.25
(ii) Other Steel Structurals	2.65	2.75
(iii) Cranes, Lifts, Hoists etc.	0.65	0.40
Hand, Small & Cutting Tools	4.38	6.00
Electric Motors, Transformers, Switchgears etc.	3.36	5.00
Electronics:	**4.79**	**6.00**
(i) Radios, Parts & Electronic Components	1.68	2.50
(ii) Data Processing Machines	1.92	2.35
(iii) Gramophone Records	0.43	0.50
(iv) P. A. Equipment	0.16	0.25
(v) Telephone & Teleprinters	0.60	0.40

Castings and Forgings:	**4.80**	**5.00**
(i) Sanitary Castings	2.94	2.95
(ii) Industrial Castings	1.60	1.70
(iii) Forgings	0.26	0.35
Machine Tools	2.84	3.10
Steel Products, N.O.S.	**3.13**	**3.80**
(i) Builders' Hardware	0.84	1.40
(ii) Water Fittings & Sanitary Fittings	0.68	0.75
(iii) Steel Furniture	0.58	0.70
(iv) Agricultural Implements	0.57	0.40
(v) Stainless Steel Utensils	0.40	0.35
(vi) Razor Blades	0.13	0.20
Diesel Engines & Parts	2.73	3.10
Battries:	**2.17**	**2.50**
(i) Dry Battery	1.15	1.20
(ii) Storage Battery	1.02	1.30
Non-ferrous Products (other than Aluminium)	**2.52**	**2.80**
(i) Brass, Copper Semis, Sheets, Circles, Ropds etc.	1.35	1.40
(ii) E.P.N.S. WARE	0.95	1.10
(iii) Brass & Copper Utensils	0.22	0.30
Wire Production, N.O.S.	**2.87**	**2.40**
(i) Wire Nails, Nettings etc.	1.19	0.95
(ii) Bolts, Nuts, Rivets & Washers	0.85	0.70
(iii) Wood Screws	0.46	0.25
(iv) Electrodes & Welding Rods	0.37	0.50
Electric Mfrs. N.O.S.	**1.79**	**1.75**
(i) Electric Accessories; Appliances	1.03	1.25
(ii) Electric Lamps & Tubes	0.63	0.35
(iii) Electric Products N.O.S.	0.13	0.15
Air Conditioners, Refrigerators etc.	0.61	0.90
Electric Fans & Parts	1.44	1.60
Rly. Track Materials	1.55	1.00
Wire Ropes	1.75	1.75
Aluminium and Aluminum Products:	**2.42**	**1.40**
(i) Aluminium Sheets, Circles & Foils, Ingots & other Aluminium products	1.83	0.75
(ii) Aluminium Utensils & Capsules	0.59	0.65
Ferrous Hollowars	**1.28**	**1.15**
(i) Tinplate Containers	0.50	0.30
(ii) G. I. Buckets, Drums, Tubes etc.	0.13	0.25
(iii) Steel Ghamellas	0.09	0.25
(iv) Steel Trunks	0.33	0.20
(v) Crown Corks	0.14	0.08
(vi) Other including Enamel Ware	0.09	0.07
Bright Steel Bars & Shaftings	1.17	0.90
Mechanical Pumps	0.67	0.75
Air Compressors	0.88	0.55
Sewing Machines	0.16	0.45
Misc. Manufactured Articles	**3.71**	**4.95**
(i) Scientific & Surgical Instruments	0.53	1.00
(ii) Oil Lamps & Stoves	0.58	0.90
(iii) Fire Arms & Sport	0.54	0.50
(iv) Abrasives & Grinding Wheels	0.21	0.30
(v) Ball & Roller Bearings	0.21	0.20
(vi) Cutlery	0.20	0.30
(vii) Flash Lights & Parts	0.10	0.10
(viii) Umbrellas	0.30	0.30
(ix) Other (including invisible earnings)	1.04	1.35
GRAND TOTAL	**116.59**	**125.00**

ACHIEVEMENTS OF INDIAN RAILWAYS

A REVIEW

Indian Railways constitute Asia's largest and the world's fourth largest system. From a small beginning about a century ago, the railways have now grown into a mighty system. The Indian railways, to-day, are running about 10,800 trains daily serving about 7000 railway stations and covering distances aggregating 1.3 million kilometers per day.

Notwithstanding the battered railway system, impaired by the economic depression during thirties, intensive usage during the period of the second world war and country's partition in 1947, the Indian Railways have made a considerable progress in respect of efficient movement of traffic and goods. In fact, marching towards modernisation, the railways have achieved cent per cent self-sufficiency in the field of loco production, coaches and wagon manufacture in the recent years. Today India is one of the most important loco/wagon producing countries in the world. The position of India as an exporter of railway locos, wagons, parts and accessories has been recognised by even the most advanced countries in the world. The import requirement of the railway has reduced considerably in the post independence period.

India started production of locomotives only after 1947. In 1950 first locomotive manufacturing unit was commissioned at Chittaranjan. The first locomotive was successfully turned out on 1st November 1950. At present, there are 3 units engaged in the manufacture of locomotives. Of these, Chittaranjan Locomotive Works (CLW) is the first, the Diesel Locomotive Works at Varanasi is the second and the Northern Locomotive Works at Amitsar is the third.

The CLW has turned out 2816 locos (inclusive of 2351 steam locos) during the last two decades. Their gaugewise production was 1908 broadgauge main lines of goods locomotives, 259 passenger traffic main line locomotives, 30 broadgauge tank locomotives for subarban and shuttle services, 94 broadgauge light passenger locomotives for branch lines and 60 metergauge goods locomotives.

Due to constant demand for electric and diesel locomotives, production of steam locomotives gradually decreased whereas production of diesel and electric locomotives was stepped up. During 1971-72 CLW produced 46 electric locomotives, 40 diesel locomotives and 19 steam locomotives. With the switch over to dieselisation and electrification, CLW have completely stopped the production of the conventional steam locomotives.

The unit at Varanasi which is engaged in production of locomotives, is manufacturing broadgauge and metergauge main line locomotives. During 1971-72 the Varanasi Diesel Locomotive unit manufactured 100 diesel locomotives.

The locomotive workshop at Amritsar, irrespective of its limited capacity of manufacturing 450 wagons a year, has planned to turn out about 1000 units of four wheeler wagons during 1972-73.

In respect of electric locomotives production, the CLW is expected to manufacture 84 locomotives per year by 1974-75. The import content in respect of AC electric locomotives, which was 53 per cent in 1964-65 was reduced to 21 per cent in 1971.

Besides locomotives of all types, coaches and wagons are being manufactured in the country. The domestic demand for these items has been fully met by the units engaged in the production. These units are the Integral Coach Factory at Perambur (Madras), M/s. Bharat Earth Movers Limited, Bangalore (Mysore), M/s. Jessops & Company, Calcutta and some Railway Workshops.

The Integral Coach Factory at Perambur is the biggest coach manufacturing unit in India with an annual production capacity of about 700 coaches. By the end of march 1974 the capacity is expected to reach 750 fully furnished coaches. The factory produces coaches of various types according to the requirements. Its range of production includes coaches for broad gauge and meter gauge for 1st class, IIIrd class sleeper, air-conditioned chair cars as well as 1st class air conditioned and power cars. The motor coaches and trailers for electric multiple units used for subarban traffic are also manufactured at the factory. The unit has indigenous content in the manufacture to the extent of about 97.5 per cent for broadgauge and about 92.8 per cent for metre gauge passenger coaches (excluding steel which is imported owing to general shortage).

Besides meeting the domestic demand for locomotives, coaches and wagons, the Integral Coach Factory has succceeded in exporting wagons and bogies to a number of countries such as Thailand and Burma. The unit has also secured an order for supply of six coaches to Zambia at a value of Rs. 1.5 million.

In addition to the coaches for export, wagons also constitute an another imortant item of export. There is a wide demand for Indian wagons from a large number of countries in the world. Yugoslavia, South Korea, Hungary and Iran are the principal markets for the wagons. In all, 150 wagons were exported to South Korea to the tune of Rs. 76.6 million. Another important order for supply of 3600 wagons was recently secured from Yugoslavia at a value of Rs. 375 million. Besides, two more orders from Hungary and Iran were secured at the value of Rs. 58 million and Rs. 42 million respectively. At the end of April 1972 the total value of orders for wagons exports on hand were of the order of Rs. 560 million. The export targets for this item for 1972-73 and 1973-74 have been fixed at Rs. 680 million and Rs. 840 million, respectively.

The Railway workshops are also producting break down cranes which were being imported hitherto. Breakdown cranes are the sophisticated item of equipment. The Northern Eastern Railway Workshop at Izatnagar has successfully fabricated a 35 tonne crane in 1970. India's first rail-mounted broad gauge 75 tonne steam crane was rolled out in the beginning of 1971 by the Jamalpur Workshop of the Eastern Railways.

The country is self-sufficient to meet to domestic requirements of railway track material including rails, sleepers, fittings and accessories. Even in the manufacture of sophisticated items like signalling equipment including signalling relays and electricals point machines, import content is being reduced to a maximum extent. The indigenous production in respect of sophisticated equipment for route relays, inter looking, automatic train control and track circulating is under progress. At present the imports are restricted to only a few items such as essential raw materials, sophisticated manufacturing techniques or special steel required. There are plans to instal manufacturing plants for production of wheels and axles and traction gears with a view to reduce imports.

India now is fully capable in the manufacture of locomotives passanger coaches, freight wagons of all types, train lighting equipment, mechanical signalling, vaccum brake equipment, track material and other allied items. With the increased operational and development activities, the Indian railways have established a sound basis for research and design development. The Research, Designs and Standards Organisation (RDSO) set up in 1957 has played a pivotal role in evolving new designs and standards of railway equipment. The research and development activities of the organisation covers such fields as metallurgical and chemical engineering, rolling stock, permanent way signalling and telecommunication engineering, traction installation etc. ☐

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EXPORT ORDER FOR INDIAN BICYCLES

The export performance of bicycle industry in India has been improving from year to year. From 7,573 bicycles worth Rs. 0.80 million in 1959 exports rose to 202,504 bicycles at Rs. 24.34 million in 1970-71. This represents a 54 per cent increase in terms of value and 46 per cent increase in terms of quantity when compared to 1,38,700 bicycles worth Rs. 15.94 million exported in 1969-70. Similarly bicycle parts and accessories have also been registering export increase. The value of such exports was of the order of Rs. 46.33 million in 1970-71.

During the first ten months of 1971-72 (April 1971-January 1972) 115,740 bicycles were exported at a value of Rs. 14.88 million. Of this, Nigeria accounted for 40,666 bicycles valued at Rs. 5.3 million. Iran with an intake of 26,274 bicycles valued at Rs. 2.86 million and Indonesia with an import of 12,248 bicycles worth Rs. 1.64 million were the other major buyers.

The export value of bicycle parts and accessories in the period stood at Rs. 64 million consisting of Rs. 4.1 million worth of bicycle chains, Rs. 4.29 million worth of free-wheels, Rs 2.19 million worth of bicycle hubs, Rs. 2.55 million worth of rims, Rs. 2 million worth of saddles, Rs. 1.15 million worth of bicycle spokes and Rs. 32.60 million worth of other bicycle parts and accessories. The export of bicycles and bicycle parts during the full year of 1971-72 is estimated at Rs. 85 million. The target for the year 1972-73 is placed at Rs. 100 million.

The headway made by the Indian bicycles in the export field has again been established by a recent contract valued at Rs. 12 million for supply of 81,000 bicycles to Indonesia. This is the single largest order so far from Indonesia. The Indian firm, M/s. Hero Industries, Industrial area, Ludhiana, who have secured the order will effect the export supplies over a period of 15 months.

The production of bicycles in India has registered a cent per cent increase in the last decade. From 1.05 million numbers in 1961, output rose to 1.93 million numbers in 1969 and 2.10 million numbers in 1970. For the Fourth Plan a target of 2.7 million bicycles is envisaged for the organised sector. Currently there are 10 units in the line with an installed capacity of 3.33 million bicycles.

The production of bicycle parts and components and accessories has also kept pace with the production of complete bicycles. The value of such production which was hardly Rs. 10 million in 1951 rose to Rs. 99.2 million in 1969, Rs. 102.56 million in 1970 and Rs. 105.3 million in 1971.

The growth of the industry has been balanced quantitatively and qualitatively. All the important bicycle units have installed modern machines/equipment and automatic plants and employ mass production techniques. They follow very effective quality control programmes from pre-manufacturing to post-manufacturing stages and the components are subjected to visual, mechanical and chemical tests in conformity with standard laid down by the Indian Standards Institution. Still greater precaution and vigilance is exercised at all stages of production in regard to bicycles intended for overseas markets. The compulsory pre-shipment scheme introduced by the Government is intended to ensure that no sub-standard products are exported.

Besides export of bicycles and parts, India is also effectively exporting manufacturing technology and know-how to regions like Africa and Malaysia.

CHEMICALS AND EXPORT TRADE

Of late, chemicals, pharmaceuticals and allied products have emerged as one of the leading non-traditional commodities contributing substantially to foreign exchange earning in India. The value of such exports reached a level of Rs. 350 million in 1971-72.

M/s. Chemco Supply Corporation, Khorshed Building, P. M. Road, Bombay, one of the leading manufacturers in the line, have been currently able to raise their exports to a level of Rs. 17.6 million per annum from a modest figure of Rs. 0.34 million in 1965.

The entire exports of Chemco are directed to the general currency area, particularly to the growing and oil-rich countries of the Gulf region. Hydrochloric acid and liquid chlorine are the main items of export. All items exported by the firm are subjected to strict quality control in their well equipped laboratory.

In recognition of their export performance, Chemco have earned three awards. Two of these awards, including the recent one for the year 1970-71, were presented by the Basic Chemicals, Pharmaceuticals and Soaps Export Promotion Council, Bombay. The third award was presented by the Government of India.

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EXPORT OF POTASSIUM PERMANGANATE

The value of potassium permanganate exported from India reached a level of Rs. 2.38 million in 1970-71 as against Rs. 0.74 million in 1969-70. The export value of the product for the first ten months of 1971-72 was about Rs. 1 million. During 1970-71 U.S.S.R. with an intake valued at Rs. 0.97 million was the major buyer, followed by West Germany (Rs. 0.61 million), Australia (Rs. 0.23 million) and Bulgaria (Rs. 0.32 million). Hungary, Saudi Arabia, Uganda, and Yugoslavia were the other importing countries.

M/s. Swadeshi Chemicals (P) Ltd., Army & Navy Building, Mahatama Gandhi Road, Bombay were able to export 463 tonnes of potassium permanganate worth Rs. 1.90 million in 1970. The firm has been able to secure a firm footing in the markets of Europe, middle East and Australia inspite of keen competition from manufacturers in Japan, U.S.A. and U.K. The achievement is significant considering that the firm entered the export field for the product only in 1967 when it secured an order from the U.S.S.R. for 100 tonnes of potassium permanganate valued at about Rs. 0.25 million.

Starting with a modest beginning, more than two decades back, the company could plan production of potassium permanganate on a large-scale in 1957 with the grant of an industrial licence for the annual manufacture of 300 tonnes of potassium permanganate. In 1962, the company secured permission for expansion of its manufacturing potential from 300 to 1200 tonnes per annum.

The company has hitherto made its headway almost entirely with indigenous resources and equipment. Lately they have moved towards production of another export oriented product, namely, the manganese sulphate. For the manufacture of this product, the waste generated from the potassium permanganate plant is being utilised. The full scale operation of the manganese plant began in 1971.

AUTOMOTIVE TYRES IN EXPORT TRADE

Exports of Indian automotive tyres have been increasing from year to year. About Rs. 65 million worth of tyres and tubes were exported during 1971-72 recording an increase of about Rs. 10 million over the exports in 1970-71 at Rs. 55 million. The exports in 1969-70 were of the order of only Rs. 41.14 million. In the first eight months of 1971-72 (April-November 1971 the export was of the order of Rs. 43.4 million. Yugoslavia was the major importer of tyres followed by Burma, Czechoslovakia, Sudan, U.S.S.R., U.S.A., U.K. and Afghanistan.

M/s. Dunlop India Limited, Dunlop House, 57-B, Free School Street, Calcutta-16 received a single order of Rs. 22 million from People's Republic of Korea for supply of truck and earthmover tyres during the current year. Interestingly, the firm's performance during this year is much more remarkable compared to its total exports of tyres and tubes worth Rs. 30.34 million in 1971. The firm exported tyres and tubes to about 70 countries during 1971 and the quantity exported constituted about 47 per cent of the total exports effected by the entire industry.

The Company is engaged in expanding their production programme and is diversifying its range of production. A new rayon truck tyre 'The Dunlop Highway 105' was recently introduced in the markets by the firm. Besides this, the firm also introduced super-taxi type tyre in the market. The firm has to its credit the developmeut of PG 6 tyre and also Aircraft tyres of new sizes including tyres for Boing 737 aircrafts.

The present licensed capacity of automotive tyre industry is about 5.2 million numbers. The industry's total production in 1971 was of the order of 4.64 million number which recorded an increase of 620,000 numbers over that of 1970. The total production in 1972 was estimated at Rs. 5.5 million numbers.

CASETTE RECORDERS TO FRANCE AND CZECHOSLOVAKIA

India has made considerable headway in the export of entertainment electronics. From Rs. 0.8 million in 1966-67 the exports of electronics rose to Rs. 48 million in 1970-71. These exports are estimated to have further increased to a level of Rs. 60 million during 1971-72. The target for 1972-73 is placed at Rs. 76.00 million. Radio parts, gramophone records, and electronic component constitute the main items of export in the group of electronic equipment.

Recently, M/s. Eskey Electronics Private Limited, Bombay, engaged in the manufacture of Casette tape recorders, have succeeded in bagging export orders from France and Czechoslovakia worth Rs. 0.5 million for supply of Casette recorders to these countries. The firm has also recently undertaken the manufacture of 13 inches TV sets with multi-channel arrangement.

EXPORT ORDER FOR POLYESTER-BASED ENAMELS

An export contract valued at Rs. 6.2 million has been recently secured by an Indian firm from U S.S.R for supply of polyester based high temperature enamels.

The Indian party, M/s. Dr. Beck & Co., India Ltd., Pimpri, Poona who have secured the order will effect supplies between November 1972 to February 1973. Under the contract, the importing country has also the option upto January 1973 to purchase additional tonnage of polyester wire enamels to the tune of Rs. 12.4 million. If the Soviet Union exercises the option, the supplies will be effected during the last three quarters of 1973.

Specialising in the manufacture of synthetic enamels, varnishes and resins, the Poona firm has built up substantial export trade to the Soviet Union, Arab countries, and Greece to reach a total value of Rs. 80 million over the last eight years.

INCREASE IN EXPORTS OF WOOLLEN HOSIERY

India's exports of wool and woollens reached a level of about Rs. 300 million in 1970-71. This was higher by over Rs. 66.92 million over the exports during 1969-70 at Rs. 232.66 million. The export target for 1971-72 is set at Rs. 350 million.

Wool blended fabrics and hosiery together with readymade garments made therefrom are the main categories that lead to this uptrend. During 1970-71 woollen hosiery and readymade garments nette Rs. 122.16 million. Intake by the East Europea countries was the largest. Besides, Afro-Asian countrie too are emerging as significant buyers for this category The range of hosiery items popular abroad include cardigans, pullovers, sweaters, jerseys, stockings, vests, socks, gloves and balaclava caps.

Adding to the export effort, M/s. Nagesh Hosiery Mills, Sant Dass Street, Ludhiana, one of the leading exporters of woollen hosiery, have succeeded in exporting woollen hosiery to the tune of Rs. 9.2 million in 1971-72 as against Rs. 8.3 million in the preceding year, registering an increase of about Rs. 1 million over their performance in the previous year.

The Ludhiana firm is well established in the international markets as an exporter of high quality woollen hosiery. Their exports are directed to most sophisticated markets such as USSR, Czechoslovakia and many other East European countries.

EXPORT DEALS IN COTTON YARN AND CLOTH

During the first ten months of 1971-72 (April 71-January 72) cotton textile yarn and cotton manufactures have earned Rs. 858.58 in foreign exchange. Of this cotton yarn accounted for Rs. 39.58 million while the share of cotton manufactures (excluding yarn, thread and clothing) stood at Rs. 819 million. UK. USA and EEC countries are the main markets for Indian textiles.

M/s. Basant Cotton Mills Limited, 24, Netaji Subhash Road, Calcutta-1, one of the prominent and established exporting firms, have succeeded in exporting cotton yarn and cloth to the tune of Rs. 2.13 million during 1971. During the year, the firm's production of yarn stood at 550 tonnes and that of cloth at 8.16 million metres. Their installed capacity was 356 numbers of looms and 17,248 numbers of spindles. The firm have plans to increase their spindle capacity by 7956 spindles.

MANGO JUICE ON EXPORT STREAM

Exports of preserved fruits and fruit preparations from India have made considerable progress in recent years. These exports earned foreign exchange to the tune of Rs. 17.26 million during 1970-71. A variety of items in the category comprised the exports such as fruit juices, jams, jelly, marmaleds and pastes etc. In this performance, juices alone had a share of Rs. 13.71 million. Among the different varieties of juices exported, mango juice holds the primary position.

During the year 1970-71, U.S.S.R. emerged as a principal buyer whose intake for mango juice was the largest at 4.34 million kg. at a value of Rs. 8.62 million, accounting for two-third of the total exports of mango juice which stood at 5.95 million kg. valued at Rs. 12.95 million.

During the first 10 months of 1971-72 (April 1971-January 1972) the mango juice and other mango products such as mango slices (dried), mangoes jams earned Rs. 20.01 million. Of this, mango juice exports were of the order of Rs. 13.02 million. USSR retained its position as the main mango juice importing country, whose intake was 4724 tonnes, at a value of Rs. 8.61 million. Saudi Arabia (532 tonnes at Rs. 1.3 million) and South Yemen Republic (387 tonnes at Rs. 1.2 million) were the other destinations.

The popularity of Indian mango juice and other mango products has once more been established in U.S.S.R. An order for supply of a sizeable quantity of Alphanso mango pulp, mango juice, slices and pickles has lately been secured from that country by M/s. Vasundhra Canning Private Ltd., Bombay. The Bombay firm plans to set up another plant to meet the increased overseas demand expected for their products.

Earlier the State Trading Corporation of India Ltd., New Delhi bagged an export order from U.S.S.R. for supply of 50 tonnes of mango juice valued at Rs. 100,000. The supplies are to be effected by a small scale fruit processing unit in Tamil Nadu.

EXPORT PERFORMANCE AND POTENTIAL

RISE IN EXPORT OF ELECTRICAL MACHINERY AND APPLIANCES

India's exports of electrical machinery, apparatus and appliances recorded a sharp increase of Rs. 31.38 million in the first ten months of 1971-72 (April 1971–January 1972) compared to the corresponding period of the preceding year. The exports during the first ten months of 1971-72 netted Rs. 165.81 million as against Rs. 134.43 million in the corresponding period of 1970-71, registering about 22 per cent rise in the export earning.

Major rise was recorded in the export value of equipment for distributing electricity which earned Rs. 48.12 million in 1971-72 as against Rs. 30.44 million in 1970-71 during the periods under review, registering an increase of Rs. 15.68 million. The uptrend in export was also witnessed in respect of electrical power machinery and switchgear. The exports in this category fetched Rs. 41.85 million against Rs. 36.20 million, recording a rise of Rs. 5.65 million.

Telecommunication equipment was the other category in which the exports registered a substantial increase. The exports for this group for the first ten months of 1971-72 amounted to Rs. 25.99 million as against Rs. 20.87 million in the corresponding period of the preceding year.

A marginal increase was also witnessed in the cotegories of domestic electrical equipment and electric apparatus for medical purposes and radiological apparatus. During the comparable periods of 1971-72 and 1970-71, the export figures for these items were : Rs. 14.9 million and Rs. 13.05 million in the category of domestic electrical equipments and Rs. 851,311 and Rs. 524,353 for electric apparatus for medical purposes and radiological apparatus.

A substantial rise was also witnessed in other electrical machinery and apparatus. During the comparable period in the two years the export value of these items was estimated at Rs. 34.91 million and Rs. 31.35 million.

The equipment for distributing electricity were mainly directed to Singapore, Kuwait, Dubai, Iraq, Qatar, South Yemen Republic, Saudi Arabia, Sudan, Malaysia, Abu Dhabi, U.S.S.R., German Democratic Republic, Federal Republic of Germany, while for electrical power machinery and switchgear Federal Republic of Germany, Sri Lanka, Guyana, Malaysia, Kuwait, U. K., Arab Republic of Egypt, Singapore, Nigeria, Iraq, Dubai, Malawi, etc. were the important destinations.

Congo Republic, Ethiopia, Czechoslovakia, Ireland, Sudan, U. K., Iran, U. K., Nigeria etc. were the prominent buyers for Telecommunication equipment. In the category of electrical machinery and apparatus, the countries responsible for major intake were USSR, Sudan, Japan, New Zealand, Malaysia, U. K., Kenya, Nepal, Singapore, Iraq, Kuwait, etc.

For domestic electrical equipment Iraq, Iran, Dubai, Kuwait, Nigeria, Australia, Sri Lanka etc. were the main importing countries. Spain, Sudan, U.S.S.R., U. K., Federal Republic of Germany, Yugoslavia, U.S.A., Iraq, Nepal etc, emerged as principal destinations for electric apparatus for medical purposes and radiological apparatus.

UPTREND IN EXPORT OF ELECTRIC FANS AND PARTS

Overseas supplies of electric fans and parts from India are estimated to have improved to Rs. 16 million in 1971-72 as against Rs. 14.4 million in 1970-71. The export target for 1972-73 is placed at Rs. 22.5 million.

Of the actual exports in 1970-71, ceiling fans were the foremost category exported at a value of Rs. 12.58 million. Pedestal fans, rail carriage fans and table fans were the other types available for export.

Iraq was the leading buyer for complete electric fans at a value of Rs. 8 million in 1970-71. Sudan and Kuwait were the importers next in importance, at Rs. 1.3 million and Rs. 1.18 million respectively. Nigeria, Iran. Singapore, Arab Republic of Egypt, Malaysia and Australia were among the other importers. Actual exports during the first ten months of 1971-72 for electric fans amounted to Rs. 11.20 million. Kuwait with an intake valued at Rs. 3 million was the major buyer, followed by Iraq at Rs. 2 million, and Sudan at Rs. 1.91 million. The other important destinations included Sri Lanka, Muscat, Nigeria. Saudi Arabia and Yemen Arab Republic.

The advance in fan engineering is such that the industry is now in a position to export fan making technology also. There are already two joint ventures; one in Malaysia and the other in Singapore for the manufacture of electric fans and sewing machines.

Fans are manfactured as per the spcifications of Indian Standards Institution for air delivery, service value, current consumption, high voltage tests etc. They are also covered by the Compulsory Quality Control and Pre-shipment inspection.

Currently there are about 25 units in the large-scale sector and about 40 in the small scale sector engaged in the production of electric fans and parts. With installed capacity of the order of 1.8 million numbers, the actual production was of the order of 1.6 million numbers in 1970. In 1971 production reached a level of 1.8 million numbers against an installed capacity of 1. 9 million numbers.

The range of electric fans produced by the industry includes ceiling fans, table fans, pedestal fans, railway carriage fans and air circulators. Apart from the products which are used for domestic purposes, the industry also produces industrial fans, exhaust fans and blowers.

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DIESEL ENGINES AND PARTS EARN MORE FOREIGN EXCHANGE

India's export earnings through overseas supply of diesel engines and parts are estimated to have attained a level of Rs. 31 million as compared to the actual exports of Rs. 27.3 million in 1970-71. The export target for these items has been placed at Rs. 37.5 million for 1972-73 and Rs. 40.00 million for 1973-74.

Diesel engines and parts are being exported from India to about 45 countries in the world. The diesel engines have been accepted by the original equipment manufacturers of advanced countries to go alongwith the equipment manufactured by them. Though stationery diesel engines are the main item of export, there is a growing overseas demand for marine and vehicular type diesel engines.

Saudi Arabia, Sudan. A.R.E., Syria, Dubai and U.K. were the main importers of marine diesel engines while diesel engines for motor vehicles were mainly directed to Sri Lanka and A.R.E. during 1971-72.

As for stationery diesel engine parts, Arab Republic of Egypt and German Democratic Republic were the major buyers, followed by Iran, Iraq, Nepal, Nigeria, S. Yemen Republic, Saudi Arabia, Singapore, Sudan, Syria, Thailand and U.K.

One of the important aspects of overseas sales of diesel engines is the arrangements made for effective after-sales-service. Apart from the fact that technical experts are being sent out for this purpose, training courses are being arranged with the manufacturers in India to impart technical. knowledge to the personnel of overseas distributors and dealers.

Besides direct exporters, diesel engines are sent out to overseas markets as components of complete machinery, especially automobiles.

Another noteworthy aspect of the industry is its capacity to export technical know-how for establishment of manufacturing units in foreign countries. Two such joint venture schemes are already in the implementation stage in Malaysia and Philippines.

Alongwith increasing exports the diesel engine industry has also made steady production expansion over the years. With a modest start in 1932, the indigenous production per annum crossed the 10,000 numbers mark, to make the country self-sufficient in regard to small horse power engines required mainly for drawing water pumps used for irrigation purppses. Making a fourfold increase the output touched 42,000 numbers in 1960. By 1965 production reached a level of about 86,000 uumbers and further went up to 1,42,000 numbers in 1969. However, due to reduced internal offtake production came down to 70,500 numbers in 1970.

There are today in all about 700 manufacturers of diesel engines in the organised sector, cooperative and small scale sectors, manufacturing a variety of diesel engines from 3 HP to 380 HP. The installed capacity in the organised sector was around 1,84,723 diesel engines at the end of 1971.

The industry is also producing heavy duty diesel engines required for both industrial and marine applications. There are three units in this field with total installed capacity of 1,440 numbers per annum. Their production during 1971 is expected to be of the order of 887 numbers, valued at about Rs. 62.1 million.

M/s. Garden Reach Workshop, Calcutta, a public sector undertaking, have established a factory for the manufacture of diesel engines from 280 H.P. to 18,000 H.P. of the kind used as main propulsion unit and auxilaries in the ocean-going vessels. The other units, M/s. Kirloskar Oil Engines Ltd., M/s. Kirloskar Cummin of Poona are engaged in the manufacture of engines mostly for industrial applications. Both these units have achieved an indigenous content of 70 to 90 per cent.

Since the progress of diesel engine industry went along with the progress of many other industries such as pumps, compressors, road rollers, concrete mixers, generators etc., the manufacturers are in a position to offer diesel engines along with such equipment.

EXPORTS OF SUGAR AND SUGAR PRODUCTS UP

India's exports of sugar, sugar preparations and honey at Rs. 280.04 million during the first 10 months of 1971-72 (April 71-January 72) marked a rise of Rs. 58.82 million over the export performance of this group at Rs. 221.22 million during the corresponding period of the preceding year.

Sugar and honey which constitute the bulk of export in this group, contributed to this increase despite a marginal decline in exports of sugar confectionery and other sugar preparations. Exports of sugar and honey rose to Rs. 279.18 million during the first ten months of 1971-72 from Rs. 219.98 million during the corresponding period of 1970-71. However, the exports of sugar confectionery and other sugar preparations declined Rs. 0.86 million from Rs. 1.24 million.

Of the total exports of sugar and honey at Rs. 279 million during the period, export of centrifugal sugar amounted to Rs. 185.93 million. U.S.A. with an intake of about Rs. 72 million emerged as the major market. The other important purchasers were Canada, Malaysia, and U. K. The export value of cane jaggery fetched Rs. 0.57 million with U. K., South Yemen Republic and Nepal as the important buyers for this category. Export of other non-centrifugal sugar was nominal and directed to Canada only.

The share of refined cane sugar and sugar candy in the overseas supply during the period was Rs. 86.30 million. Sri Lanka, Kenya and Vietnam Republic were the importing countries for refined cane sugar while supplies of cane sugar candy were directed mainly to U. K. and Nepal.

In the category of sugar confectionery and other sugar preparations, sweet meat, other confectionery flavoured or coloured sugar syrup molasses, were the principal export items. Nepal, Zambia, U.S.A., Kenya, Kuwait, Muscat and Bahrein Islands were the main importing countries.

UPTREND IN DAIRY PRODUCTS EXPORTS

Exports of Indian dairy products and eggs improved to Rs. 1.8 million in the first 10 months of 1971-72 (April 71-January 72, from Rs. 0.93 million for the entire year of 1970-71.

During the period of review in 1971-72, butter constituted the major single export item accounting for Rs. 1.7 million and sharing 95 per cent of the entire exports of these products. Interestingly during the full preceding year butter fetched only Rs. 0.19 million. Similarly there was four-fold increase in exports of cheese and curd at Rs. 9,735 during the first ten months of 1971-72 as compared to the export value of Rs. 2,415 for the entire year of 1970-71. However, there was a decline in the export earnings of milk/cream and eggs. The export value of these products during the first ten months of 1971-72 and full year of 1970-71 were milk and cream Rs. 75,470 and Rs. 92,625; eggs Rs. 8,800 and Rs. 45,747.

Directionwise, during the period of review in 1971-72, Nepal emerged as the main importer of melted butter and fresh butter. Malaysia, South Yemen Republic and Singapore were the other destinations. For cheese and butter, Federal Republic of Germany and Kenya were the only importing destinations while for eggs, milk and cream, Nepal was the sole absorbing country.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

OIL SARDINE—A GROWING INDUSTRY

The marine landings in India rose from about 0.50 million tonnes in 1951 to about 1.75 million tonnes in 1970. The 1971 landing of fish was estimated at about 1.88 million tonnes.

In the marine fish landings in India, oil sardines and other sardines occupy a sizeable share. Quantitatively oil sardines constitute about 20 to 30 per cent of the total marine landings. The actual quantity of the variety ranges from 0.2 to 0.3 million tonnes. It has been estimated that the potential catch of pelagic fish (of which oil sardine is the main constituent) would be of the order of 1.7 million tonnes.

Oil-sardine abounds the West Coast of Indian sub-continent. It is distributed in Indian waters from Kathiawar to Coromandal coasts (West Coast) and the Ganjam District (East Coast) in Orissa. However, Kerala State accounts for 99 per cent of oil-sardine landing. Oil-sardine accounts for more than 60 per cent of marine landing and thus constitutes very important fishery in these two States. Fishing season extends from August to March when about 95 per cent of oil-sardine fish is landed, but the best period is from November to February. Eighty per cent of fish is landed during these four months.

Oil–sardine is the oily fish having fluctuating fat content. Commercially the fishery is supported by catch of 12-15 cms. size (25-50 gms). The maximum fat content (11-16 per cent) is observed during September to December, while the fish is spent and lean during June and July. The percentage of protein is fairly constant at 20 per cent. Presence of amino acid with high lysine content make it nutritious while high fat contents render it tasty. Recent investigations have shown that oil sardine has hypo-cholesterolemic effect. This gives the fish special significance as the high serum cholesterol level is often associated with coronery and circulatory disturbances.

The landing of oil sardines is far in excess of the demand for use in fresh state. However, as this fish has high fat content the traditional practice of salting and sun drying does not offer a suitable method for preservation of this fish. Mostly juvenile sardines (8-12 cm, 6-20 gms) which are generally lean (1 to 4 per cent fat) are preserved by traditional methods. Fifty per cent of the fish is cooked and pressed for oil and cake. The press-cake is used as fish-meal or converted into fiish guano (manure) for manuring the plantation crops. Oil sardine fish thus offers an economic and sufficient raw material in the country for production of fish meal, fish manure, and fish oil. Though the quality of these products has not been generally upto the mark because of the traditional methods used, the fact remains that a new area of fish technology and fish oil technology, based on sardine fish can be developed in the country.

The present production of fish meal by traditional methods is about 2000 tonnes and that of sardine oil 3000-4000 tonnes. Assuming 50 per cent of oil-sardine fish is processed into quality meal and oil and on the basis of present catch of 0.2-0.3 million tonnes, potentiality works out at 18,000-27,000 tonnes for fish meal and 8,000-11,000 tonnes of fish oil. Sardine-oil extracted properly and conforming to standard quality is an important raw material for many industries (leather, paint, etc); hydrogenated fish oil can be used in soap or for margarine production. Possibility is there to use properly extracted and processed sardine-oil in sardine packs in oil. With the increasing price for vegetable oils, fish oil is being considered more and more for use in paint and soap industries.

Considering these potentialities, already trends are there to utilise the surplus catch of oil sardines for processing into meal and oil in modern plants to produce quality products.

A pilot plant is being commissioned by the Central Food Technological Research Institute, Mysore to develop indigenous know-how for the development of fish meal and oil technology. The present capacity of the proposed plant would be 350 kg per hour. The Government of Goa, Daman and Diu have imported fish meal and oil plant which is expected to be commissioned soon. In Mysore State, already 2 modern plants having capacity of 30-35 tonnes per day each are being operated. The oil sardine fish constitutes the main raw material for these plants. One of these plants is totally indigenous. Realising significance of such plants, more and more states have now plans to instal fish-meal and fish-oil plants through their fisheries corporations, cooperative marketing federations and prospective entrepreneurs.

A large number of Research Organisations are now striving hard and contributing for development of fish oil technology. For example, the Central Leather Research Institute, Madras has developed fish oil products for leather industry. Regional Research Laboratory, Hyderabad processed fish oil for paint industry. Central Food Technological Research Institute, Mysore developed processes for extraction of quality oil, refining of oil and use of oil in oil sardine packs and discovered efficacy of sardine oil as hypocholesterolemic agent. The Central Institute of Fisheries Technology, Cochin developed use of sardine oil in surface coating, printing ink, lubricating oil. Besides, many other Research Organisations have carried out useful research work for development of sardine oil industry. Supported by these research efforts and with the increasing availability of quality oil, the country is likely to have a promising sardine oil technology in the near future.

Indian fish technologists have also made substantial advance in preservation of oil-sardine fish for longer duration without deterioration of the quality. The Central Institute of Fisheries technology, Cochin has made considerable headway in this respect. Their research has now made it possible to transport the oil fish sardine without deterioration in quality to those destinations where availability of fish is far from satisfactory and where the fish can be offered at comparatively cheaper rate.

Iced and frozen oil-sardine, processed sardine packs, dehydrated products, defatted and deodourised fish protein concentrate (FPC) and many other recipes are based on oil-sardine fish. In all these products oil is obtained as a byproduct.

Though in small quantity, sardine fish oil, fish meal, and manure are exported from India. The value of such exports was Rs. 95,350 in 1971. Of this fish oil fetched Rs. 90,730 while the balance of Rs. 4,630 was contributed by fish manure. There was no export of fish meal during the year.

UPTREND IN PRODUCTION OF INGOT STEEL

Production of ingot steel in India is estimated to have improved to 6.3 million tonnes in 1971-72 from about 6.14 million tonnes in the preceding year.

Bhilai Steel Plant and Durgapur Steel Plant in the public sector and the State sector project, M/s. Mysore Iron and Steel Limited together with a few private sector units contributed to this improvement.

With an installed capacity of 2.5 million tonnes of ingot steel, production of Bhilai Steel Plant improved to 1.95 million tonnes in 1971-72 from 1.94 million tonnes in 1970-71. This marked an improvement in capacity utilisation to : 78.2 per cent against 77.6 per cent. The improvement was more appreciable in Durgapur Steel Plant where production of ingots increased to 0.70 million tonnes in 1971-72 from 0.63 million tonnes in 1970-71. With the rated capacity of 1.6 million tonnes, the production outturn was 43.8 per cent and 39.6 per cent of the installed capacity in the two comparable years.

The Mysore Iron and Steel Limited Bhadravati together with private sector manufacturing units in the line (other than Tata Iron and steel Company Limited Jamshedpur and Indian Iron and Steel Co., Burnpur) also recorded an appreciable improvement. Their production of steel ingots in 1971-72 reached a level of about 0.50 million tonnes as against only 0.18 million tonnes in 1970-71. However, the outturn by TISCO and IISCO declined to 1.70 million tonnes and 0.62 million tonnes in 1971-72 from 1.7 million tonnes and 0.63 million tonnes in 1970-71. There was a similar trend in Rourkela Steel Plant in the public sector. Against the installed capacity of 1.8 million tonnes of the steel ingots, production of the plant in 1971-72 was 0.82 million tonnes ingots. In 1970-71 the production was of the order of 1.0 million tonnes ingots.

The production of ingot steel is expected to improve further after the completion of 4 million tonnes Bokaro Steel Plant to be set up in two stages : the first stage with an annual capacity of 1.7 million of ingot steel growing to 2.5 million tonnes of ingot steel. The expansion of Bokaro from 1.7 million tonnes to 4 million tonnes is to be phased in a manner so as to achieve a capacity of 2.5 million tonnes of ingot steel by the end of 1973-74.

SHIPYARD LAUNCHES DREDGER

The Hindustan Shipyard Ltd., Visakhapatnam-5 have recently launched the Grab Hopper dredger 'Bombay Duck II.' The dredger has been completely designed by the Shipyard for operation within the Harbour waters and approach channels. It will be able to dredge various types of soil to a depth of 21.33 metres, at a speed of about 11 knots in fully-loaded condition and at full power. The hull of the dredger is welded construction built to the highest specifications of the Lloyd's Register of Shipping, London. The Hopper capacity of about 500 cubic metres (750 tonnes) has been provided amidships with 6 pairs of hydraulically operated Hopper Doors and two numbers Hind-Marion 101 M-Diesel-driven full circle slewing Grab Cranes with a capacity of 10 tonnes each at 30 feet radius.

So far the Shipyard has built and delivered 58 vessels including/small crafts, aggregating a gross registered tonnage of 347,820 approximately and a cargo carrying capacity of about 478,000 tonnes deadweight.

The launchiug of the dredger was described as an important event in the history of Visakhapatnam Port Trust since this was the first dredger of its kind to be procured by the Port Trust and also the first of its kind to be designed and constructed by the Shipyard. The Shipyard has thus diversified its activity by undertaking its construction. The Shipyard so for concentrated on the job of constructing ocean going vessels.

INCREASED PRODUCTION OF SYNTHETIC DETERGENTS

Synthetic detergents' production in the country during 1971 went up to 54,081 tonnes from 31,029 tonnes during 1970, registering an overall increase of 74.3 per cent.

The present installed capacity for manufacture of synthetic detergents is 55,700 tonnes per year. This capacity will be nearly tripled after various schemes for expansion of capacity have been implemented.

Six licences for new schemes for a total capacity of 53,600 tonnes per year have already been issued. In addition, 6 letters of intent have also been issued for an extra capacity of 54,800 tonnes per year.

The Development Council for Oils, Detergents and Paints has suggested a capacity target of 1,00,000 tonnes for 1973-74. The capacity licensed together with additional capacity covered by letters of intent would be more than the target set by the Development Council.

PAINTS AND VARNISHES
A REVIEW

India has made a notable progress in the paints and varnishes manufactures. Going parallel with process of rapid industrialisation in the country, the paints and varnishes industry has now come of age. Today, the industry produces oil, varnishes, spirit varnishes and water varnishes with application of sophisticated manufacturing technology. The industry is fully capable of meeting the surface coating requirements of a broad spectrum of industries including transport, chemicals, and structurals. The constant demand from the other industries for a variety of paints and varnishes to decorate and protect their products has indeed been the main reason for development of the industry in India.

Among the categories of surface coating materials now being manufactured in the country, mention may be made of high quality protective paints for decorating houses, buildings and factories; synthetic enamels and varnishes for production of structural and commercial transport vehicles; marine and industrial finishes, conforming to international standard and specifications for painting ocean-going vessels and jet aircrafts; paints to withstand rigours of temperature and corrosure from acids, alkalies and petrol; insecticides and antipest finishes and supersynthetic enamels and impregnating varnishes required by the electrical industry.

From a small beginning in 1890 in small-scale sector, India's first large scale paints manufacturing unit was set up in Calcutta at the beginning of the century. Before the first world war, the requirements of quality paints were met by imports only. The industry began to develop only when foreign supplies were cut due to war and domestic demand increased. During the second world war period also the industry showed signs of development but real growth was noticeable only during the post independence period.

At the beginning of the First Five Year Plan, about 150 paints and varnishes manufacturing units were estimated to be operating in the country. Of these, about 100 units were in the small scale sector. The installed capacity of the remainting 50 major units was estimated at 65,000 tonnes. In 1951, production achieved by important units was of the order of about 34,000 tonnes while in 1960 it stood at 51,000 tonnes of paints and varnishes. During the following years, the capacity and actual production figures were 86,400 tonnes and 59,100 tonnes in 1961, 106,000 tonnes and 67,200 tonnes in 1966, 106,500 tonnes and 79,500 tonnes in 1967. Onwards 1967 upto 1970, the annual production was ranging around 62,400-65,000 tonnes.

In the beginning of 1971, there were 18 units in the organised sector with an installed capacity of 106,300 tonnes, for the manufacture of paints, enamels, and varnishes. Additional capacity of nearly 14,000 tonnes has been created. Actual production in 1971 was of the order of 66,000 tonnes valued at Rs. 280 million in respect of paints, enamels, and varnishes and 400 tonnes in case of wire enamels and impregating varnishes. Apart from the 18 organised manufacturers, there are more than 250 small scale units in the line, scattered all over the country. Today industry is competent to meet the domestic demand. However, some special categories of paints are now being allowed to be imported by only export oriented units.

The import and essential raw materials required in the paints and varnishes manufacturing include pigments, synthetic resins, and industrial solvents. A number of inorganic pigments like titanium dioxide, zinc oxide, white lead, non-setting red lead, yellow chrome, prussian and ultramarine blue, brunswick green, chromic oxide green, red synthetic oxide and aluminium powder/paste as well as a wide range of organic pigment dyestuffs are manufactured in the country in large quantities. India has also achieved a stage of industrial self-sufficiency in respect of synthetic resins like alkydes, phenolics, malerics, melamine and urea formaldehydes, epoxy and polyvinyl acetate emulsions which constitute the base for the production of high class industrial finishes. An extensive group of industrial solvents, based on coal tar and petroleum are also available in the country.

Actual production of synthetic resins during 1971 was of the order of 15,483 tonnes. In the same year the output of titanium dioxide was 5427 tonnes, zinc oxide 5400 tonnes, white lead 638 tonnes, ultra marine blue 5245 tonnes and aluminium powder/paste 1560 tonnes.

Besides fulfilling the domestic demand, the industry exported during 1969-70 pigments paints varnishes and other related material to the tune of Rs. 23.7 million. In the following year the exports of these item nearly doubled to Rs. 45 million.

Among the colouring materials, ultra-marine blue, one of the colouring materials, earned Rs. 1 million against supplies made to Vietnam Republic, U.K. and France. Persian Gulf Red oxide was mainly supplied to France and Federal Republic of Germany. Including these two varieties, the total export value of colouring materials was of the order of Rs. 3.1 million.

In addition to these, a wide variety of prepared paints, enamels, lacquers, varnishes and artist's colours netted Rs. 41 million in foreign exchange in 1970-71. Among these, synthetic enamels, the main item, earned as much as Rs. 18.8 million in foreign exchange in the year. U.S.S.R. emerged as the major importing country whose intake was of the order of Rs. 16 million for 2.8 million kg. Iraq, Arab Republic of Egypt, and Kuwait were the other important destinations for synthetic enamels.

Next in importance on the export front are varnishes which earned Rs. 10 million, mainly from U.S.S.R. Prepared organic dyestuffs and dry pigments, prepared inorganic pigments, opacifiers, liquid lusters used in ceramic enamelling lacquers, prepared metallic powder in the form of paints, red mixed paints, natural resin enamels, prepared water pigments used for finished leather, textile printing colour pigments, emulsion binders, etc. are also making a headway in the export field.

With the expertise built up in the line, the industry is now in a position to export technical know-how on a turnkey basis for establishing factories for the manufacture of standard quality paints, enamels and varnishes as also inorganic pigments and synthetic resins, particularly among developing countries.

IRON ORE RESERVES IN KERALA

Huge iron ore deposits estimated at 45 million tonnes have been found in Kozikode District of Kerala. The deposits are concentrated in blocks of Cheruppa, Eliyethimala, Nanminda and Naduwallur of the Kerala State.

In the Cheruppa block, the iron ore deposits have been estimated at 10.7 million tonnes. Of this 7.5 million tonnes would be of unoxidised ore, 3 million tonnes of oxidised ore and 0.2 million tonnes of float ore. In the Eliyethimala Block total reserves of ore have been estimated at 20 million tonnes comprising 16 million tonnes of oxidised ore and 4 million tonnes of unoxidised ore. In the other two blocks of Nanminda and Naduvallur the deposits have been estimated at 4.7 million tonnes and 9.8 million tonnes, respectively,

The Geological Survey of India has been also exploring iron ore deposits at Alampara in the Kerala State since November, 1970. The GSI has completed drilling up to 2000 meters in 12 bore holes. The Government of Kerala proposes to instal a sponge iron plant based on the iron ore found in the State.

The Government of India, in the meanwhile issued a letter of licences to the Kerala Industrial Development Corporation for establishment of a plant to produce 90,000 tonnes of mild, medium carbon and spring steel billets per annum.

FABRICATION OF MULTI CHANNEL TV

Manufacturing of 13 inches Television set is soon to be commenced in India costing only Rs. 1000 (exclusive taxes). This will be India's first multi-channel TV set.

For the present manufacturing capacity of the firm M/s. Eskay Electronics Private Ltd., Bombay who are undertaking the production of the designed set will be 2500 sets per annum but it will be raised to 5000 sets per annum. Besides TV sets, the firm produces Casette tape recorders, and car cassete stereo sets. The firm is also manufacturing tapes. It has entered in export field by supplying overseas cassette recorders.

Started in 1969, production of T.V. receivers in the country increased to 7800 numbers in 1971 from 5130 numbers in 1970 and 1266 numbers in 1969. The installed capacity too rose from 10,000 numbers in 1970 to 20,000 numbers in 1971. The total licensed capacity till the end of 1971 was 50,000 numbers. Recently a letter of intent has been issued to a unit for the manufacture of 20,000 numbers of TV sets.

KOTA REACTOR CRITICAL

The first unit of the Rajasthan atomic power project at Rawatbhata, near the Ranapratap Sagar Dam in Kota (Rajasthan) went critical recently.

This implies that the first unit has reached a stage where the chain reaction is being maintained at a constant rate, that is, it is self-sustaining. After the criticality, a programme of further tests and experiments at various power levels would commence and last a few months. On the successful completion of these tests, including the response of the system to the conditions existing in the grid, the unit would be declared operational.

The reactor has been constructed by Indian engineers and scientists with Canadian assistance.

The fuel for this reactor was natural uranium and half of the initial fuel used for loading the reactor had been made at the Bhabha Atomic Research Centre, Bombay from uranium produced in the Jaduguda mines of Bihar. The other half was obtained from Canada.

The control system of the reactor was also built in India by the Electronics Corporation of India Limited, a public sector corporation under the Department of Atomic Energy.

The second unit of the Rajasthan Project is scheduled to be ready by 1974.

Besides the Rajasthan Atomic Power Station at Kota, the country has two other nuclear power stations—the Tarapore Atomic Power Station and the Madras Power Station.

The Tarapore Station was commissioned in October 1969. The station generated 4,590 million units of electricity up to end March, 1972. The Madras station is under construction and is being built wholly by Indian engineers. Lately the Atomic Energy Commission in India has decided to set up a fourth atomic power station at Narora in Western Uttar Pradesh. For the present, the Narora station will consist of two 200/235 M.W. reactors and will feed power to Northern India.

HOUSING FACTORIES TO BE SET UP

India is to start the production of fabricated housing material on mass scale by the end of the Fourth Five Year Plan. The Hindustan Housing factory, a public sector undertaking, proposes to set up five more factories at Bombay, Calcutta, Madras, Ahmedabad and Kanpur, in addition to its existing factory at New Delhi.

The Factory to be installed at Bombay is estimated to cost Rs. 26 million. It is expected to reach its full production capacity of 3,500 tenements by the middle of 1974. The construction work of the proposed factory is to begin at the end of 1973.

Realising the magnitude of urban housing problem in the country, a chain of housing factories is to be set up in the later stages. The proposed housing factories, in the due course of time, are expected to act as mother plants to the other units.

The Hindustan Housing Factory has developed methods, equipment and processes to be applied in the Bombay Factory.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

ELECTRONIC TACHOMETER DEVELOPED

An electronic tachometer has been developed by the Central Mechanical Engineering Research Institute (CMERI), Durgapur.

Electronic Techometer is a device used for measurement of control of the speed on the rotating bodies. Various types of tachometers are known for example mechanical, electromagnetic and stroboscopic type. The mechanical tachometers are generally operated by fly-ball or gear actuating counters and have the inherent disadvantages of having higher time log to follow repidly fluctuating speed with a reasonable accuracy and frequent maintenace. They also need direct coupling with the shaft which may load system. Electromagnetic types are mainly based on the principle of electric generator, which also require mechanical coupling with the shaft. They also require maintenance of brush and bearings if they are employed for continuous measurement of speed. The stioboscopic type is not suitable for the measurement of varying speed and is never used for speed control purposes.

The electronic tachometer is besed on pulse technique where out of a rotating body electric pulses are generated in a reluctance type pick up at frequency directly proportional to the speed of the rotating body. These pulses are converted through a solid state circuitry to a d.c. volt which is linearly and directly proportional to the frequency and is used for the continuous measurement recording or switching at present speed levels of the rotating body. The tachometer can be used through either direct or indirect coupling with the rotating body. This can also be used for both local and remote monitoring. The proposed tachometer has wide application in the field of measurement and control of rotational speed where accurcy, wide range and reliable operation by unskiled personnel are of primary importance.

The noteworthy features of the newly developed electronic Tachometer are: the tachometer is rugged and portable as it consists of solid state elements; it can measure speed in wide range (10 to 25,000 r.p.m.) in 5 different steps-higer or lower steps can also be provided; since the pick up may be coupled electromagnetically with the rotating body, the loading on the system can be practically eliminated; the information can be transmitted over a considerable distance from the point of measurement; this facilitates indication on panel board and the operation for controlling of speed from a remote point; the instrument can be used to drive a recorder for continuous recording of speed-time characteristic of the rotating body; the device has very good thermal stability; the measurement can be carrled in upto an environment temperature of 55°C; the insturment possesses very long life owing to the presence of a few movable parts; the instrument may be powered either through main supply or by a dry battery; the power consumption in the instrument is very low; and it can be used in a close loop control system and it has also got facilities to control any other devices at present speed level of the rotating body.

The materials required for the production of electronic Tachometer include general type transistors, resistors and capacitors. All these are available indigenously.

GLYCERYL GUAIACOLATE

A drug which is mainly used as an expectorant in cough remedies and in certain cases as intestinal antiseptic, has been developed by the National Chemical Laboratory, Poona. The process consists of two steps: (a) prepration of guaicol from o-anisidine and (b) prepration of glyceryl guaiacolate from guaiacol and epichlorhydrin. In the first step guaiacol is obtained by dizaotisation of o-anisidine followed by hydrolysis. In the second step glyceryl chloride prepared from epichlorhydrin is condensed with sodium guaiacolate (obtained from guaiacoal) to produce glyceryl guaiacolate. The laboratory has developed the process on 66 g/- batch and standardised the working conditions. The product has been tested by a few pharmaceutical firms and has been found to conform to the National Formulary NF (XIII).

At present there is no indigenous production of this drug and the entire requirement estimated at about 2 tonnes per annum is met through imports. O-anisidine, sodium nitrite, sulphuric acid, benzene and epichlorhydrin etc., are the main raw materials required for the manufacture of glyceryl guaiacolate. Out of these, epichlorhydrin and sodium nitrite will have to be imported. Guaiacol can be prepared from o-anisidine and the imports of this item can be avoided.

Reactors, distillation vessels, separators, plastic buckets or wooden vats etc., are the major items of plant and equipment. All of these can be fabricated indigenously. For a small scale plant, the entire equipment could be of glass.

PROCESS FOR THERMOGRAPHIC PAPER DEVELOPED

A coating composition for making thermographic paper for use in recording system has been developed by the Regional Research Laboratory, Jorhat. A solvent coating composition consisting of heat fusible white particles and a binding agent has been evolved. The coating on application on one side of the coloured grease proof paper yields thermographic paper. The process has been developed at the laboratory scale using small pieces of paper.

Raw materials required for production of thermographic paper are : Grease proof paper; solvent and chemical. These are the major raw material required for the production of thermographic paper. All chemicals are produced in the country. Besides coating machines, driving rolls, cutting machines and vessels fitted with stirrer for mixing are the important items of plant and machinery required for the production of thermographic paper. All are indigenously available. The production cost of the thermographic paper without graphic print is estimated at Rs. 12.70 per kg. against the price of the imported thermographic paper with graphic print at Rs. 20/- to Rs. 50/ per kg.

TENSION METER

A process for the manufacture of Tension Meter has been developed at the Central Mechanical Engineering Research Institute, Durgapur.

The newly developed meter consists of dial gauge, three small pulleys mounted on ball bearings and suitable mechanism for sensing the tension of the wire which is allowed to run between three pulleys. It is a small handy instrument and the indication of tension can be obtained from calibrated dial gauge directly. The instrument can be fabricated for different ranges of tension with minor changes of some components. The instrument developed at the institute measures the tension of wire upto 3 kg.

Tension meters are widely used to measure the tension of wires of yarns while they are being processed in cable making and textile industries. Accurate control and measurement of tension become a matter of paramount importance particularly in view of the advancement in technology with resultant increase in the rate of production.

The process is available with the National Research Development Corporation of India.

SPORTS GOODS INDUSTRY

The origin of sports and sports equipment in India dates back to ancient times. However, with the advent of British rule, some of the ancient sports which had flourished for centuries languished and new games came into vogue. The Indian sports goods industry made a start towards the beginning of the last quarter of the nineteenth century to cater to the demand for the equipment of new games. But with the partition of the Indian sub-continent in 1947, the major centres of sports goods industry went to Pakistan side. The industry had therefore to start afresh in post independence period in new centres in Jullundur (Punjab), Meerut (Uttar Pradesh), Delhi, Calcutta and Bombay.

The industry is today turning out the most sophisticated sports goods in various grades to meet the home demand and the exacting requirements and tastes of sportsmen and players all the world over. The

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range of products includes a host of items such as cricket balls, hockey balls, footballs, hockey sticks. cricket bats and stumps, tennis and badminton rackets, polo equipment, batting gloves, wicket-keepers gloves, wicket keepers legguards, boxing gloves, football gloves, golf gloves hockey gloves, punching gloves etc. The production of gloves for boxing and cricket is likely to make a big headway in the near future as adequate arrangements have been made with the tanneries to produce leather required for their manufacture. In this line of manufacture, ski-gloves is another prospective item likely to come up in a big way during the next few years.

Besides the outdoor sports equipment, India is also producing numerous items of indoor games such as dart boards, carrom boards, chess sets, ping pong bats and balls, billiard tables and other requisites, rings and ring boards. Finest quality of wood and allied materials are used for manufacture of these goods. These items are also made from plastics. In addition, India also manufactures a variety of instruments for physical exercise such as chest expanders, springs, dumbells, solid dumbells, barbells or weight-liftings, iron shoes, wrist grips, parallel bars horizonal bars throwing hammers, jumping shoes, running shoes, spring boards and the like. E.P.N.S. sports-wares like cups, trophies, and medals and sports hosiery are also made in the country. A variety of item for fishing are also made.

To ensure that only quality goods are marketed, Governmental inspection and standardization agencies, in close and useful association with the Sports Goods Export Promotion Council, New Delhi are ever seized with the question of laying down requisite norms of conduct and application for manufacturing and fabrication of sports products for different sports. Rigourous disciplines have been worked out by the sports factories to impart its modernity and stature of a growing industry. Testing equipment has been installed at the Quality Marketing Centres where the manufacturers are also afforded the facility of following the quality specifications adopted by these centres. These places also serve as common facility centres which the smaller manufacturing units can use to a great advantage for getting their products semiprocessed with economic results.

There has been a spectacular transformation in the structure of the industry. The large units are expanding and the small ones are beginning to sub-contract to the large ones. The result of this is an imporvement in standardization and also expansion of the production.

Alongwith diversification of product range and high quality of the sports goods, the industry has been finding increasing outlets in the international markets. Broadly India's annual exports of sports goods amount to nearly a quarter of their total production in the country. The year 1970-71 witnessed a sizeable improvement in the export of sports goods at Rs. 17.6 million as against Rs. 13.5 million earned during 1969-70 and Rs. 11.9 million during 1968-69.

The export of sports goods during the first two quarters of 1971-72 (April-September, 1971) at Rs. 9.4 million improved by almost 50 per cent over the corresponding period of 1970 at Rs. 6.5 million. Quantumwise, footballs and other leather balls coupled with cricket bats and requisites as also all types of rackets and requisites, represented an increase averaging nearly 70 per cent, 100 per cent and 100 per cent respectively. But the significant gain percentage-wise was the 10 times increase recorded in the export of table tennis bats and requisites.

The export performance of leather items was four times better while in the case of rubber play balls and polo balls, polo sticks and equipment the rise averaged to 50 per cent. Gains to the extent of 20 per cent were also made in the export of hockey and cricket balls. Items like cups, nets, bladders, fishing lines and hockey sticks and requisites as well as carrom boards, chess boards etc. more or less maintained the level of 1970 exports.

Countrywise, exports of sports goods trebled in the case of Denmark, France and Germany. Export to U.K. also registered a cent per cent increase.

In the African region exports to Kenya, Nigeria and Zambia recorded substantial increases.

Exports to Australia were up by 50 per cent while in the case of U.S.A. the improvement was of the level of 70 per cent.

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FRESH ORDERS FOR TEXTILE MACHINERY

The competence of Indian industry in the manufacture and export trade of textile machinery is a fact well recognised the world over. As many as 47 countries imported textile machinery made in India during 1970-71 at a value of Rs. 55 million, among which the Arab Republic of Egypt has been the most leading customer having imported worth Rs. 42.3 million.

The textile machinery industry in India has an installed capacity of nearly Rs. 500 million per annum. In 1970, the production of the major machinery items was of the order of about Rs. 288 million; the value of spares and accessories produced in that year was estimated to be around Rs. 280 million.

India manufactures almost the entire range of textile machinery beginning from blow room lines to carding engines and from high speed draw frames, fly-frames and ring frames to doublers. The industry also manufactures pirn-winder and cone winders, sizing machines and power looms as well as the automatic looms of various designs. Almost all the wet processing machines, required by the textile mills such as continuous and semi-continuous bleaching plants, open width as well as rope form singeing machines, dyeing equipment, open width washing machines, printing machines and calendars etc. are also manufactured in the country.

India's important customer in textile machinery, the Arab Republic of Egypt has recently placed fresh orders on M/s. New Standard Engineering Company Limited, NSE Estate, Goregaon East, Bombay-63 NB. The Cairo firm, M/s. General Organisation for Industrialisation placed the orders worth over Rs. 1 million. The supplies of this order were executed in the first quarter of 1972-73 (April-June). The same Cairo firm have requested the Bombay suppliers for fresh supplies of textile machinery to the tune of nearly Rs. 0.4 million.

The Bombay firm, earlier supplied to the same Cairo firm substantial quantities of the machinery, worth Rs. 7.3 million in 1970-71 and Rs. 2.7 million worth in 1971-72. Also the Bombay firm supplied the machinery to M/s. Misr Shebin El-Kom, Spinning and Weaving Co; Arab Republic of Egypt; M/s. Asian Cotton Mills, Colombo (Sri Lanka); M/s. Varimex, Poland etc.

The Bombay Engineering Company has also made a mark in the export field of C.I. castings, screw cutting machines and power hammers, ball bearings, structural steel, foundry equipment, pneumatic hammers, drilling machines and burner, blowers etc.

The firm's export successes in respect of castings was already covered in this weekly dated July 29, 1972 (page 4).

REFRACTORIES AND PROCESSED MINERALS FOR EXPORT

An estimated Rs. 41.6 million worth of refractories and processed minerals were exported by India in 1971-72. The country now exports a wide range of products in the line such as calcined magnesite, calcined kyanite and sillimanite, refractory assay materials, barytes, steatite, bentonite, calcined bauxite, talcum powder, lime stone (marble), vermiculite, asbestos greased graphite packing, china and fire clays etc.

M/s. Chemco Supply Corporation, Khorshed Building, P. M. Road, Bombay-1, was one of the leading exporters having earned Rs. 5.3 million in 1971-72 through their overseas supply of refined and processed barytes powder and sodium base bentonite to Saudi Arabia, Dubai, Iraq, Singapore, Bahrein Islands and Philippines. The firm's export business in that year recorded improvement over the export value at Rs. 3.15 million in 1970-71.

M/s. Burn & Co. Ltd., Martin Burn House, 12, Mission Row, Calcutta-1, exported refractory assay materials and calcined magnesite to the tune of Rs. 4 million in 1971-72. The firm's customers included the U.K., Federal Republic of Germany, USA, France, Japan, New Zealand, Syria, Australia and Canada.

Calcined bauxite was the major item supplied overseas by M/s. Carborundum Universal Ltd., 11-12, North Beach Road, Madras-1. Czechoslovakia has been their major customer. In the first three quarters of 1971-72, the firm's export to that country stood at Rs. 1.3 million while in 1970-71 their supplies to that market were of the order of Rs. 3.12 million.

M/s. Kalpana Agencies, 275, Linghi Chetty Street, Madras-1, is another firm that is prominent in the export field. They exported steatite powder, feldspar and quartz in 1971-72 at Rs. 1.58 million as against Rs. 1.43 million in the preceding year. The importers of their products include Singapore, Japan, Sri Lanka, Philippines, Italy, France, Sweden, Netherlands, Hungary, Thailand, U.K. and West Germany.

M/s. Minerals (India) Inc., 23-A, Netaji Subhas Road, Calcutta-1, also figure prominently among the exporters of calcined kyanite and calcined bauxite last year (1971-72). Their exports were Rs. 3.83 million. They have succeeded in exporting to markets like Federal Republic of Germany, Italy, Hungary, France, Yugoslavia and Rumania.

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To the Arab Republic of Egypt, Sri Lanka and Iran, refractory and high alumina bricks were sold by M/s. Orissa Cement Ltd., Rajgangpur, Orissa, to the tune of Rs. 0.7 million in 1971-72. Stoneware fittings and gulley traps are exported by M/s. Bombay Mineral Supply Co. Bombay to the East African markets M/s. J. D. Jones & Co., Ltd., Calcutta-1, have mainly supplied asbestos greased graphite packing to Burma. Several other new firms have exported small and big quantities of refractories and processed minerals to many markets abroad, particularly in Europe and South East Asia.

RUBBER FOOTWEAR AND EXPORT MARKETS

While the merit of India-made leather footwear is already established in foreign markets, rubber and canvas footwear has also gained a strong foothold abroad. As against the export earning of leather footwear at about Rs. 100 million in 1970-71, that of rubber and canvas footwear was nearly Rs. 22 million in the same year, U. K., Canada, Belgium, German Federal Republic, U.S.A., Denmark, Nepal, Netherlands, Yugoslavia, France and Australia constitute the major markets for India's rubber and canvas footwear.

In the large-scale sector the average annual production of rubber and canvas footwear is estimated at about Rs. 60 million. Additionally, considerable production capacity exists in the small sector also.

Among the rubber footwear exporters, M/s. Bata Shoe Company Private Ltd., Calcutta, have earned about Rs.22 million in foreign exchange during 1971-72 as against their export effort of Rs. 18.7 million in the preceding year. Their supplies are mainly directed to the U. K., France, U.S.A., Cyprus, Canada, Bulgaria, West Germany and Sierra Leone.

Another firm in the line, M/s. Carona Sahu Company Ltd., Dr. D. N. Road, Bombay-1, have secured through their export performance in 1971-72 Rs. 3.14 million as compared to Rs. 1.21 million in 1970-71. Their exports of rubber footwear were to Bulgaria, Canada, France, U. K., Zambia, Italy, Malawi, Sri Lanka, Syria and Netherlands.

Though a small scale firm, M/s. Prince Rubber Industries, Punjab, have also succeeded in popularising their footwear in the nearby markets like Nepal. In 1971-72 they exported nearly worth Rs. 1.5 million to Nepal.

EXPORT PERFORMANCE IN SANITARYWARE

India's export earnings of sanitaryware have substantially improved from the level of Rs. 0.8 million in 1970-71 to Rs. 1.55 million in 1971-72. The credit for this imorovement in export trade goes to M/s. Hindustan Sanitaryware and Industries Ltd., Wellesley Place Calcutta. This firm had nearly doubled their export effort in 1971-72, compared to the preceding year—Rs. 1.28 million from Rs. 0.65 million. The Calcutta firm's sanitaryware—competent in quality and design range—has been successfully exported to several markets abroad, the prominent among which are Kenya, Uganda, Australia, Malaysia, Singapore, Mauritius, Iran, Malawi, Bahrein islands, Sudan and Burma.

M/s. E.I.D. Parry Ltd., Dare House, Parry's Corner, Madras-1, is another firm in the export line. They succeeded in exporting sanitaryware and fitting to Burma, Kenya and Mauritius to the tune of Rs. 82,000 in 1971-72.

JOINT VENTURES IN MAURITIUS

The Government of Mauritius have shown interest in the setting up of industrial joint ventures by Indian industrialists. The Government of India have so far approved nine proposals for setting up the ventures, out of which two have already gone into production. Of the projects on production stream with the help of two Indian parties, viz. M/s. Sidharth Jasubhai Ltd., Ahmedabad and M/s. Ayurved Sevashram Private Ltd. Udaipur, the first has already earned profits. They have exported additional plant and machinery worth nearly Rs. 47,000, over and above their exports towards their equity participation. The second firm has just gone into production.

The first venture which has earned profits was for the production of mosaic tiles and rolled shutters. The company started production in 1969. The other unit with the Assistance of the Udaipur firm is in respect of canning industry.

The other projects which have been approved and are in various stages of implementation, relate to the production of rubber products, textiles and ready made garments as also to a cement plant and a hotel project.

The Government of India have so far approved the establishment of 135 industrial enterprises abroad with Indian collaboration of which 33 have already gone into production and 52 are in different stages of implementation.

The total investment involved in the projects under operation and implementation is Rs. 68.63 million and Rs. 90.29 million respectively. More than half of the 33 projects under operation have gone into production only recently i.e. after 1969 and it is too early to judge their performance. However, the projects that went on stream earlier, as reported by March, 1971, earned foreign exchange equivalent to Rs. 11.43 million by way of dividends, technical know-how fee, managerial fee, etc. Besides, an additional foreign exchange worth Rs. 68 million was also earned from additional export of machinery, equipment, raw materials etc. to these joint ventures over and above the exports made against Indian equity participation.

EXPORT PERFORMANCE AND POTENTIAL

RECENT TRENDS IN EXPORT TRADE

Actual export performance in the first eleven month of 1971-72 (April 71-February 1972) was of the order of Rs. 14,235 million. In the same period of 1970-71 the export value was Rs. 13,854 million.

Exports under the category of food and live animals showed improvement at Rs. 3832 million from Rs. 3738 million in the comparable periods. Fish and fish preparations recorded a substantial growth—Rs. 367.84 million against Rs. 276.5 million. Fruits and vagetables fetched more foreign exchange at Rs. 661 million as compared to Rs. 588.5 million. Fresh fruits, and nuts earned Rs. 596 million as against Rs. 492 million while dry and preserved fruits and fruit preparations fetched Rs. 18.48 million against Rs. 14.19 million. Export value of sugar and honey also improved to Rs. 271.97 million from Rs. 221.50 million. Tea and mate secured Rs. 148.0 million as compared to Rs. 131.9 million. The supply of coffee and spices were more or less maintained at Rs. 215 million and Rs. 326 million respectively.

Tobacco and tobacco manufactures proved to be another area of export growth. Un-manufactured tobacco secured Rs. 373 million against Rs. 270 million while tobacco manufactures Rs. 329 million against 8.4 million. Oilseeds, oil nut and oil kernels also secured Rs. 60.4 million against Rs. 58.8 million.

Textile fibres and waste constitute another sector where exports increased from Rs. 254.65 million to Rs. 292 million. The export growth was more specific in respect of raw cotton and raw jute. Cotton exports fetched Rs. 169.27 million against Rs. 152.81 million, while jute secured Rs. 72.37 million as compared to Rs. 38.87 million.

In the group of chemicals and allied products, chemical elements and compounds, medicinal and pharmaceutical products, synthetics, dyestuffs essential oils and other materials witnessed brighter export performance, although the entire chemicals group fetched only Rs. 294.6 million as against Rs. 334.3 million. While the export of undressed hides and skins and fur skins declined from Rs. 35.9 million to Rs. 6 million, leather and leather manufactures have considerably improved to the level of Rs. 796.51 million as compared to Rs. 658.96 million. Leather alone fetched Rs. 790.73 million against Rs. 653.66 million. Reduction in the export trade of hides and skins as against the improvement of leather products exports is in line with the Government's policy.

The group of textile yarn, fabrics and made-up articles contributed substantially to the growth in foreign exchange earnings in the period under review. This category fetched Rs. 3836.3 million as against Rs. 3167.0 million in the comparable periods.

Jute manufactures recorded a surprising uptrend from Rs. 168.9 million to Rs. 238.5 million. Cotton manufactures (excluding yarn and thread and clothing), fetched Rs. 902.12 million against Rs. 888.32 million. Other woven textile fabrics including woollen manufactures also contributed to the export effort. This category secured Rs. 126.79 million as against Rs. 109.24 million. Floor coverings and tapestries (other than of cotton and jute) fetched Rs. 175.54 million against Rs. 144.97 million.

Pearls and precious and semi-precious stones also witnessed rise in export trade in 1971-72. In the first eleven months there was a record export earning of Rs. 474.36 million as against Rs. 386.64 million in the same period of preceding year.

In the Iron and steel group, rails and railway track construction material recorded export progress, having earned Rs. 86.7 million as against Rs. 61.82 million. Tubes, pipes and fittings of iron and steel was another area of good export performance at Rs. 97.7 million against Rs. 94 million. · However, the total group of iron and steel witnessed sizeable fall in export trade at Rs. 369.5 million as compared to Rs. 839.6 million.

Among metal manufactures, categories like wire products and fencing grills, metal containers for storage and transport, machine and hand tools and household equipment of base metals, evinced export dynamism. The section of machine and handtools fetched Rs. 53.33 million as against Rs. 44.06 million.

Although the entire group of machinery and transport equipment registered some decline in their exports from Rs. 660.98 million to Rs. 646.0 million, the category of electrical machinery, apparatus, and appliances has substantially improved its export performances. This category fetched Rs. 178.99 million as against Rs. 141.89 million, electrical power machinery and switchgears secured Rs. 46 million as against Rs. 40 million, equipment for distributing electricity Rs. 50 million against Rs. 33 million; telecommunication apparatus Rs. 27 million against Rs. 23 million, domestic electric equipment Rs. 13.8 million against Rs. 14 million, electrical apparatus for medical purposes and radiological apparatus from Rs. 0.5 to about Rs. 0.9 million, etc.

In the group of non-electrical machinery, power generating machines, metal working machinery etc. have registered signs of export growth during the comparable periods. Of transport equipment, railway vehicles witnessed remarkable uptrend from Rs. 23.9 million to Rs. 67 million, road vehicles (other than motor vehicles) also improved from Rs. 64.27 million to Rs. 69.49 million, while road motor vehicles improved from Rs. 176.8 to Rs. 102.72 million.

Among the other categories where export improvement was recorded were clothing (Rs. 309 million against Rs. 272 million), footwear (Rs. 108.6 million against Rs. 100 million); scientific, medical, optical, measuring and controlling instruments and apparatus (Rs. 14.56 million against Rs. 12.6 million), printed matter (Rs.17.6 million against Rs. 12.7 million) etc.

A declining trend was, however, noticed in respect of certain categories such as meat and meat preparations, cereal and cereal preparations, food-stuff (for animals), mineral ores, petroleum and petroleum products, coal, chemical elements and compounds, plastic materials, paper and paperboard and non-ferrous metals.

EXPORTS OF ENGINEERING PRODUCTS TO SOVIET UNION

Up to 1959-60 practically no exports of engineering goods were effected by India to the Soviet Union. Today the Russian market absorbs a substantial portion of these exports. In 1971, the value of the exports to that country was nearly Rs. 180 million. (In 1971-72 India's global exports of engineering goods were of the order of Rs. 1165 million). There are further prospects for increasing the export effort in the line to U.S.S.R. in future as certain conversion deals between the two countries are under consideration.

Of India's total exports of non-traditional goods in 1971 at Rs. 2120 million, the Soviet Union's share was Rs. 532.8 million, that is, over 25 per cent.

Engineering items imported by U.S.S.R. form India included beams, channels, pillars, girders, and fabricated bridgework; EPNS wares, handtools and small tools, wire ropes, surgical instruments and electric wires and cables (ACSR). In 1971, the export of roller steel products to the Soviet Union was of the order of Rs. 45.1 million, ACSR and ASC cables Rs. 8.9 million, accumulators Rs. 7.8 million and other engineering goods including auto ancillaries, steel ropes, wire cloth, diamond tools, surgical and medical instruments, surgical gloves, vacuum flasks, finger tips, knitting machines, and typewriters Rs. 117.3 million.

The conversion deals which are now under consideration relate to supply of stainless steel or German silver by U.S.S.R. for conversion into cutlery in India; supply of steel by U.S.S.R. for conversion into screws, bolts, nuts etc. for re-export to that market; deal for conversion of Soviet cotton into textile products, and conversion of wool supply by U.S.S.R. into woollen textiles. Negotiations regarding these conversion deals are in various stages of progress. In respect of the deal relating to stainless steel/Germa Silver for conversion into cutlery in India, for instance, India has already supplied samples of three firms, namely, M/s. Kischco, Bombay, M/s. Pearl Metal Works, Bombay and M/s. Macneill & Berry, New Delhi. In regard to the deal for conversion of steel into screws, bolts etc. the production capacity and export capability of indigenous wood screw manufacturers is being assessed and need for capacity expansion also being examined. As for the deal for conversion of cotton into textiles, the Cotton Textile Export Promotion Council, Bombay, have already signed a contract with Exportljan, Moscow, under which 20,000 tonnes of cotton would be supplied by U.S.S.R. to India for conversion into 126.6 metres cotton fabrics and 5 million pieces of towels to be exported to U.S.S.R. The Soviet Union have sent three shipments of the quantity of cotton committed and India has also covered the supply of textiles and towels to a considerable extent.

A recent development in the context of India's export trade of engineering products to U.S.S.R. has been the negotiations between Mashino-Export of Russia and certain leading exporters in India for supply of 40,000 electric motors valued at Rs. 7 million.

SCHEMES TO INCREASE TRADITIONAL EXPORTS

Notwithstanding the efforts at export diversification, it is well known that the bulk of India's export trade still emerges from the traditional sector. Items like jute manufactures, tea, cotton piecegoods, fruits and vegetables, oil cakes, tobacco, coir, raw cotton and waste, etc. contribute substantially to the total export effort. In view of their importance, the Ministry of Foreign Trade have been actively pursuing schemes to expand their export trade.

Jute manufactures, for instance, have fetched Rs. 1904.4 million in 1970-71 and Rs. 2402.3 million in the first eleven months of 1971-72. This reveals an uptrend. But there have been problems of raw jute availability and modernisation of the jute industry. The Government of India have therefore set up the Jute Corporation to stabilise prices of raw jute on remunerative levels and to ensure steady supplies to the mills. To help modernisation and diversify the output of the industry, adequate financial assistance is being assured by the Government through the Industrial Finance Corporation. Through research and development new uses are being found for jute, particularly as decorative and furnishing fabrics.

Tea also continues to be in the vanguard of India's export trade having earned Rs. 148.25 million in 1970-71 and Rs. 148.02 million in the first eleven months of 1971-72. To encourage further exports, Government have abolished export duty on tea in March 1970. In order to help replantation, replanting subsidy schemes are in operation. The Tea Trading Corporation was set up in 1971 to promote exports of packet tea which is expected to improve unit value realisation. In cooperation with other producing countries, India is also trying to work out viable international arrangements to stablise tea prices in the international markets.

Cotton textiles form another area of traditional export importance. A scheme has been prepared for selective modernisation of the export oriented sector of this industry under which imports of sophisticated types of textile machinery would be permitted to mills exporting at least 20 per cent of their production. Active efforts are also being made to diversify exports, particularly of ready-made garments and blended fabrics. Also the export markets are being gradually expanded so that concentration on traditional markets like the U.K. is minimised.

India exported Rs. 520.4 million worth of cashew kernels in 1970-71 but the following year witnessed a sizable export growth to the level of Rs. 576.0 million. In terms of quantity nearly 50,300 tonnes were exported in 1970-71 while 56,800 tonnes were supplied overseas in the year that followed. To provide imported raw nuts to the industry at reasonable prices, recently the Cashew Corporation has been set up. Simultaneously active plans are under way for gradual improvement in the annual yield of raw cashew nuts in the country.

Coffee secured Rs. 251.9 million in 1970-71 and Rs. 214.5 million in the first eleven months of 1971-72. The fall in value realisation was despite an increase in the quantity exported from 32,200 tonnes to 34,600 tonnes. As the export quota fixed for India under the International Coffee Agreement is not commensurate with India's capability to export in the line, the Coffee Board, is propagating the use of Indian Coffee in non-quota, non-traditional markets also.

The schemes that have been mentioned above for improving the export trade in traditional commodities are only examples. All other agro-mineral based traditional export products also are receiving the same attention from Government. Public sector agencies like State Trading Corporation of India are actively trying to develop new markets for traditional products. The country's bilateral trade arrangements with socialist countries have helped to provide new markets for these traditional exports.

EXPORT TRADE IN WOOL AND WOOLLENS

India's export trade in raw wool and woollen products registered a record level of Rs. 326.3 million in 1971-72. The export value in 1970-71 was Rs. 325.72 million while it was Rs. 264.76 million in 1969-70, Rs. 266.33 million in 1968-69 and Rs. 264.3 million in 1967-68.

The export target set for the year 1972-73 by the Wool and Woollens Export Promotion Council Bombay is Rs. 400 million.

Woollen hosiery has recently replaced the group of carpets, druggets and namdahs as the foremost important variety exported in the line. Woollen hosiery fetched Rs. 134.56 million while carpets and druggets Rs. 108.83 million. Next in importance was raw wool exported to the level of Rs. 34 million. Woollen worsted and knitted wool mixed fabrics netted Rs. 23.95 million, and woollen readymade garments Rs. 19.17 million. Woollen shawls and lohis were exported in the same year to the tune of Rs. 3.10 million, while woollen blankets secured Rs. 2.49 million and woollen worsted yarn Rs. 0.1 million.

TREND IN PEPPER EXPORTS

An estimated quantity of 19254 tonnes of black pepper at a value of about Rs. 150 million was exported by India in 1971-72 as compared to 17963 tonnes valued at Rs. 152.5 million in 1970-71.

India has been a traditional and major exporter of black pepper over the years. Indonesia and Malaysia are the other leading suppliers in the field.

India's average annual production of pepper has been placed at 25,000 to 26,000 tonnes. About 80 per cent of the production is exported while the rest is consumed indigenously. India's exports of this spice are destined to about sixty countries of the world. By far the biggest single buyers were the U.S.A. and U.S.S.R. U.S.S.R. and other East Europeon countries are now the biggest buyers—together they account for about three-fourths of total exports. In the free currency area, U.S A., Canada and Italy are the largest buyers.

The Ministry of Agriculture have undertaken plans to increase pepper cultivation. With the propagation of high yielding varieties like Panniyar I, it is hoped that the production in the country will pick up and additional exportable reserves created.

India has decided to join in the formation of Pepper Community to bring better stabilization in the world pepper marketing as a whole. Along with its other members, namely, Indonesia and Malaysia the community will reduce sharp fluctuations in the export prices of pepper by devising means to eliminate competition *inter se*.

The export figures given under item "export trend of India's engineering product" Page 13–14 of issue No. 34 dated 19–8–72 of this weekly or in crore rupees.

(Rs. 1 crore is equal to Rs. 10 million).

EXPORT POSITION OF RAW JUTE

In the first eleven months of 1971-72 (April 1971-February 1972), raw jute exports by India amounted to 31123 tonnes at a value of Rs 72.37 million. In the comparable period of 1970-71, the export value was only Rs. 38.87 million. U.S.S.R. was the leading importer at 7705 tonnes valued at Rs. 20.45 million, followed by the U. K. at 7175 tonnes valued at Rs. 20.26 million. The next important importer was Belgium at 4856 tonnes valued at Rs. 12.17 million. Among other imporerts were Sweden Rs. 6.67 million, Australia Rs. 1.8 million, Uganda Rs. 1.76 million and West Garmany Rs. 1.20 million.

EXPORT PERFORMANCE OF SILK FABRICS

In the seven month period, January to July 1972, export of mulberry silk fabrics was of the order of 2 million square metres valued at about Rs. 31 million while that of tasar silk goods was 0.4 million metres at a value of Rs. 7.92 million. In the mulberry market, West European countries absorbed 1.3 million square metres at Rs. 18.20 million. The traditional Asian markets imported 0.28 million metres of Rs. 4.53 million worth. Together with Asia, the other traditional markets of Africa, purchased 0.41 million metres at Rs. 6.90 million.

Countrywise, West Germany imported mulberry fabrics from India to the tune of Rs. 8.29 million. Next in importance was France at an import value of Rs. 3.5 million followed by U.S.A., at Rs. 2 million, U. K. Rs 1.98 million, Malaysia Rs. 1.9 million, Japan Rs. 1.57 million, Singapore Rs. 1.34 million; Italy, Kenya and Sweden Rs. 1 million each.

In respect of tasar silk goods exports, West Germany was the foremost importer in the period reviewed. This country imported 0.2 million square metres worth Rs. 4.1 million. The other importers were France, U.S.A., Switzerland, Italy, Austria, Japan, U. K., and Australia.

Varietywise, mulberry silk fabrics are exported as dress materials, scarves, sarees, readymade garments and ties in that order of importance. In the period reviewed dress materials made of mulberry silk fetched Rs. 11.36 million while scarves Rs. 9.28 million, sarees Rs. 5.59 million, readymade garments Rs. 3.4 million and ties Rs. 1 million.

EXPORT OF RICE AND PULSES

In 1970-71, India exported basmati rice to the level of 32,768 tonnes valued at Rs. 50.32 million which was the highest quantity so far exported. Saudi Arabia was the most important recipient, having absorbed 8833 tonnes valued at Rs. 13.51 million. Qatar, Bahrein islands, Kuwait, Dubai, South Yemen People's Republic were the other important markets. In the first eleven months of 1971-72, the export value of rice was only Rs. 10.47 million (6933 tonnes). Bahrein islands, U.K., Kuwait and Nepal accounted for the bulk of these supplies. Since 1963, export of rice was being allowed only through the State Trading Corporation. For the first time some quantity of rice was exported to Australia during 1971-72.

Export of pulses and flour fetched Rs. 35.22 million in the first eleven months of 1971-72 (April 1971 – February 1972). The export amounted to Rs. 39.90 million in the same period of 1970-71. The main buyers of Indian pulses have been the West Asian countries, the U. K., and Sri Lanka.

INDO-WEST GERMAN TRADE TRENDS

India's trade with the Federal Republic of Germany has during the first ten months of 1971-72 (April 1971 - January 1972) witnessed a larger adverse balance compared to the full preceding year 1970-71— Rs. 748.8 million as against Rs. 745.7 million. In 1970-71, Indian exports to the West Germany amounted to Rs. 323.0 million while her imports were Rs. 1068.8 million. In the first ten months of 1971-72, Indian exports were Rs. 296.0 million and Indian imports Rs. 1045.0 million. By comparison, the first ten months of 1970-71 recorded Indian exports at Rs. 268.9 million and her imports at Rs. 874.3 million.

To arrest the trend of widening trade deficit with West Germany steps have been taken to accelerate Indian exports to that country. These include the efforts pertaining to secure reduction/elemination of tariff/non-tariff barriers of the items of export interest to India, identification and concentration of export efforts on a few selected products, exploration of means to secure increased West German investment in export oriented ventures in India as also to secure Indian participation in joint ventures abroad including consultancy services and effective utilisation of import agencies in West Germany.

Indian exports to West Germany mainly consist of traditional items (accounting for about 70 per cent) such as leather, tea, works of art, iron ore and concentrates, coir yarn, cotton fabrics, jute manufactures, cashew kernels etc. Interestingly, however, Indian exports of non-traditional products such as engineering, chemical and allied products have gone up from Rs. 33.2 million in 1969-70 to an estimated value of Rs. 49.2 million in 1971-72.

Next to U.K. in West Europe, West Germany constitutes the largest market for India's non-traditional products. The exports of engineering products during 1970-71, was of the order of Rs. 31.34 million as compared to Rs. 10.71 million during 1969-70. The exports related to hand tools and small tools, machine tools, electric motors, transformers, automobile parts, dry batteries, electric conductors etc. Exports of basic and allied chemicals also have shown improvement to this market in recent years The non-traditional products that have export potential to the German market include automobile ancillaries, electronic components, handtools and small tools, motors and pumps, steel pipes and tubes, bright bars, industrial castings, electric wires and cables, dry batteries. bicycle parts, sewing machines, industrial fastners, basic chemical etc. It is to be hoped that the various efforts being made by the Indian Government and industry in diversifying the country's exprot structure to West Germany will help reduce the adverse balance of trade in the years to come. India's trade with the German Federal Republic is on the pattern of her trade with free market economy countries and thus should not normally preclude any item being exported to that country. However, based on the decisions of the European Economic Community the German Government imposed quota restrictions on imports on cotton textiles. jute goods and coir products. India has been pressing the EEC for signing of a Trade Agreement and for a solution of the various commodity problems, particularly as a consequence of the British entry into the EEC.

TRADE PROSPECTS TO AUSTRALIA

A wide range of new items with export potential to Australia has been suggested by a Trade and Economic Delegation which recently visited that country from India. The Delegation has brought home the fact that the Australian market can absorb Indian products ranging from footwear and machine tools to refrigerators, high pressure pumps, air conditioners and machinery both electric and non-electric.

In recent years, there has been a rise in India's adverse balance of trade with Australia. This was due to the increased Indian intake of items like non-ferrous metals, wheat, wool, dairy products, ores and concentrates of non-ferrous base metals. In fact, in 1970-71, the adverse trade balance against India was as much as Rs. 12.1 million; Indian exports in the year were Rs. 24.5 million and Indian imports Rs. 36.6 milion. According to the Delegation, quite a few items which India now imports from Australia are required to meet the essential needs of her growing industries and Australia is perhaps the most natural source, provided that India can work out a systematic programme of exporting to that country, "goods which it requires and which we can supply".

Among the more important products of India's export to Australia currently are jute manufactures, tea, cotton fabrics, cashew kernels, marine products, machinery and iron and steel. Apart from the traditional items of export, the Delegation feels that certain other products bear promise of further increase, namely, footwear, chemicals and compounds, non-electric and electric machinery, iron and steel items, clothing and made-up garments. Machine tools and hand tools also offer good scope. Among iron and steel items galvanised wire was specified by the Delegation. Also the

Delegation received enquiries for products like table rice, fresh flowers, lemon grass oil, benzene and other chemicals, handicrafts, hardware, padlocks, cutlery, calf leather, shoes, wigs and hair, canned products, army soft-wear, computor ribbons, PVC sheetings and leather cloth, cement, plywood sanitaryware/fittings etc.

Being a free economy, Australia also offers scope for joint industrial ventures to India, according to the Delegation. Lines of production which require labour intensive components and parts would offer particular future for setting up joint-ventures for assembly in that country. Some of the parts can be manufactured in Australia while others exported from India are assembled and packed for local consumption. Sewing machines, household electrical goods, electrical and electronic equipment are some of the examples in this regard.

Already a few Indo-Australian collaboration arrangements are currently in operation in India such as, India-Pistons-Rapco Ltd., Madras; Bimetal Bearings Ltd., Madras; Castrol Ltd., Bombay; and United Engineering Services, Jamshedpur. The Delegation feels that it would be in mutual interest to identify further lines of production with Australian collaboration so that the Australian technology can be made use of and the products of such collaboration can find regular markets in Australia as also in third countries. Wool combing and processing has been referred to as an area of promise in this regard.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

INDIAN TEXTILE INDUSTRIES

A REVIEW

The textile industries of India have registered noticeable growth trends in recent years. Production of cotton yarn and cloth of man-made fibres and yarn witnessed definite improvement. Their contribution to the export trade has risen over the years. The production and export trade in the textile machinery manufacturing industry have also reached record levels.

In the cotton textile industry, there were 664 mills with a capacity of 17.90 million spindles and 209,000 looms at the end of 1970. Cotton yarn production in 1970 was up by 14 million kgs. at 1965 million kg. compared to 1969. The gradual shift towards the finer side was also noticeable in the countwise pattern of production; the average count spun in 1970 was 28.51 against 27.74 in 1969. The installed spindleage of both the standing and composite mills was of the order of 17.85 million while the installed loomage was 208,542 in 1970.

Production of cloth at 7850 million metres improved by 143 million metres over 1969. The share of the decentralised sector in the total production went up to 47 per cent against 45.9 per cent in 1969. Category-wise mill-sector production of coarse cloth accounted for 13.9 per cent (579 million metres) while medium B cloth was 26.6 per cent (1108 million metres), medium A, 44.9 per cent (1866 million metres), 5.3 per cent in respect of finer cloth (219 million metres) and 9.3 per cent for super fine cloth (385 million metres).

The production of blended fabrics in the mill sector stood at 81 million metres in 1970 as against 60 million metres in 1969. Similar tendency of growth was noticed in the production of mixed fabrics which was six million metres against 4 million metres.

In the man-made textiles industry total production was of the order of 935 million metres in 1970 as compared to 894 million metres in the preceding year. Of this, staple fibre production was 130.72 million kg. as against 119.18 million kg. In the staple fibre production, cellulosic and staple fibre yarns were the most important while there was some production of synthetic fibres also. In the category of filaments, cellulosic variety was 37.77 million kg. against 38.05 million kg. and that of synthetic filaments was 10.33 million kg. against 8.10 million kg.

Acrylic fibres appeared on the production scene of the country in 1970.

The woollen branch of the textile industry also witnessed improved trends in yarn and cloth production. The output of woollen yarn including worsted and shoddy and carpet yarn was 19.57 million kg. as against 18.87 million kg. The output of wearable fabrics improved to 13.37 million metres from 12.63 million metres while that of non-wearable fibres to 4.32 million kg. from 4.23 million kg.

The textile machinery and accessories manufacturing industries made a big stride in production. It was of the other of Rs. 288.6 million in 1970 against Rs. 181.15 million in 1969. The output of textile machinery spares and accessories rose to Rs. 27.83 million from Rs. 17.0 million.

SOME FACTS ON THERMOPLASTICS INDUSTRY

India's plastic production in 1970 was estimated at 97,400 tonnes. Of this the share of thermoplastic materials like polyethylene, poly/vinyl chloride (PVC), polypropylene, nylon, etc. was 90,400 tonnes, while that of thermosetting plastics like phenol-formaldehyde and urea formaldehyde was of the order of 7000 tonnes. Thermoplastics thus constitute over 90 per cent of India's plastics production. The important items are low and high density polythelene, PVC and polystrene. The installed thermoplastics production capacity is 28,000 tonnes per annum for low density polythelene, 20,000 tonnes per annum for high density polythelene, 56,000 tonnes per annum of PVC and 17,500 tonnes for polysterene. The total installed capacity in the line is thus 121,500 tonnes.

The feed stock for the manufacture of low density polythylene in India is alcohol/naphtha, while for the high density variety it is naphtha. For PVC, the feed-stocks are carbide alcohol and naphtha. Alcohol, naphtha and benzene are the feed stocks for polystyrene.

It has been estimated that the total requirements of thermoplastics in India would be of the order of 24,000 tonnes per year by 1973-74, and 4,45,000 tonnes by 1978-79. The requirements estimated for 1973-74 are 35,000 tonnes for polysterene, 72,000 tonnes for low density polythylene, 30,000 tonnes for high density polythylene, polyvinyl chloride 80,000 tonnes and polypropylene 7,000 tonnes. Based on the assumption that 85 per cent of the available production capacity will be utilised by that year, the installed capacity at the end of the Fourth Five-Year Plan (1973-74) should be 2,86,000 tonnes, it is estimated.

It is evident, therefore, that to meet the estimated requirement, the production of low density polythylene should be of the order of 86,400 tonnes by 1973-74 and 2,09,000 tonnes by 1978-79. Likewise the required production capacity for high density polythylene, PVC, polypropylene and polystyrene will have to be 77,000 tonnes, 2,323 tonnes, 50,000 tonnes and 92,000 tonnes respectively by 1978-79 to be able to meet the estimated requirements. Substantial gaps in the estimated requirements and the likely available capacities over the plan periods necessitate programmes for expansion of production capacity; the Indian Government and industry are engaged in devising means to bridge this gap.

INDIAN CARDAMOM

Production of cardamom in India improved to 3,170 tonnes in 1970-71 from 2,300 tonnes in 1969-70. Production during 1971-72 is estimated at about 3,000 tonnes.

This uptrend is significant considering that the production of cardamom had been gradually declining during the years from 1963-64 to 1968-69 : 4100 tonnes in 1963-64; 2200 tonnes in 1964-65; 2000 tonnes in 1965-66; 2700 tonnes in 1966-67; 2400 tonnes in 1967-68; and 2100 tonnes in 1968-69. The uptrend noted in 1970-71 and 1971-72, besides favourable weather conditions, is also attributable to the efforts of Cardamom Board, set up in 1966 with its headquarters at Cochin (Ernakulam) to develop cardamom production and streamline its exports. The steps taken by the Board to improve cardamom production inculde the scheme for control of 'Katte', a virus disease affecting cardamom plantation. Besides, financial assistance is given to planters to buy sprinkler irrigation equipment for use when the monsoon fails.

Interestingly, India is the largest producer of cardamom in the world accounting for nearly 60 to 70 per cent of the total world production. The area under cardamom cultivation in the country in 1970-71 was estimated at 81,560 hectares. Kottayam, Palghat and Kozikode in Kerala; Coorg, Hassan and Chikmagalur in Mysore state, and Madurai, Tirulvelli and Coimbatore in Tamil Nadu are the important cardamom growing districts in India.

The Central Food Technological Research Institute (CFTRI) Mysore, which deals with the technological research aspects of the various spices, has lately carried on research on the oil contents of various types of cardamom and has evolved a process to distil oil efficiently. This is important as the price of cardamom oil varies from Rs. 1,000 to Rs. 1,500 per kg. in the world market.

India's cardamom is considered to be superior in quality as compared to the one from Gautimala-India's main competitor with an estimated production of 500 tonnes per annum. This explains how exports of cardamom from India have been steadily growing both in quantity and value over the last few years. In 1964-65 exports were merely 1503 tonnes valued at Rs. 27 million. During 1970-71, these exports reached a level of 1704 tonnes valued at Rs. 109.4 million as compared to about 1229 tonnes valued at Rs. 90.2 million during 1969-70. Saudi Arabia, Sweden, Finland, West Germany, Kuwait, U.S.S.R., Bahrein islands, U. K., Afghanistan are some important consuming countries of Indian cardamom.

MINERAL FINDS IN RAJASTHAN

During the last decade, rich mineral deposits worth Rs. 80,000 million have been located in Rajasthan. These deposits will considerably accelerate the pace of industrialisation in Rajasthan.

As a result of exploration, substantial reserves of copper ore have been established in the Khetri copper belt, which are considered adequate to sustain the proposed copper smelter at Khetri for a quarter of a century. Experimental production of copper ore from the upper levles of Khetri was started in 1970. Regular production at the mine will be initially at the rate of 3000 tonnes of ore per day increasing to 7600 tonnes per day by 1976-77.

A multi-metal deposit was located in Rajpura-Dariba area of Udipur district where large reserves of lead-zinc have been found. Several important by-products namely silver, cadmium, antimony and arsenic will also be recovered from this deposit. The deposit will add considerably to the lead-zinc potential of the country.

Another notable discovery is the pyrite-pyrohotite deposit in Saladipura area of Sikar district, which will provide the much needed sulphur for production of sulphuric acid required far fertiliser and chemical industries.

Yet another important discovery is that of rock phosphate in Udaipur district which has added a new dimension to the mineral wealth of Rajasthan and will provide the only source of rock phosphate in the country, vitally needed for production of super phosphates.

Several other minerals of industrial signficance have also been investigated and their potentials worked up. These include, fullers earth, woolastonite, asbestos, talc. and silica sand.

In field of ground water, both for drinking purpose and for agricultural and industrial development, the Geological Survey of India has made useful contributions by locating potential water bearing horizons in the water scarcity areas of western Rajasthan.

SELF-SUFFICIENCY IN POWER GENERATING EQUIPMENT

India need no longer import thermal or hydro-electric power equipment for the projects that are to come up in the Fifth Five-Year Plan period (1974-75-1978-79). This is in view of the present trend in the production in the country and the fact that the quality and prices of indigenously manufactured equipment compared favourably with those of imported ones.

In fact, Indian made boiler equipment presently costs less than even the imported equipment; the prices of other indigenous products also would not exceed more than 10 per cent of the landed cost of the imported products. Even in respect of such products the indigenous prices are certain to go down to the same level of prices as that of the imported ones, stated the Minister of Industrial Development.

NEW TEXTILE AND PLANTATION UNITS TO BE SET UP

The Government of India have recently decided to sanction a number of new cotton spinning units primarily in the backward areas of the country. Applications from interested entreperneurs have already been invited for tne purpose.

It has also been decided to sanction 20 shoddy spinning units of 600 spindles each in backward districts. Forty worsted spinning units consisting of 1200 spindles each have also been sanctioned for such areas. In addition to this, 576 woollen powerlooms have been given to the undeveloped districts of Haryana, Uttar Pradesh, Madhya Pradesh and Bihar. Proposals for additional powerlooms for similar districts of Orissa, Assam, Manipur and Arunachal States are also under active consideration.

In respect of jute, the feasibility of establishing new jute mills in the industrially undeveloped jute growing States of Andhra Pradesh, Assam, Bihar, Orissa and Tripura was considered in a recent study. A present, there are 4 mills in Andhra Pradesh, one in Assam, three in Bihar and none in Orissa and Tripura. With a view to ensuring that the jute growers in these States, get a better price for the produce and in order to encourage jute production in these States, it has been decided to set up one jute mill in each of the undeveloped districts of these States.

In the case of plantations, in addition to sizeable plantations in the hilly areas of Jamu and Kashmir and U.P., a recent decision is to evolve a scheme for encouraging the farmers in and around Nainital to take to the cultivation of tea. A scheme is also being evolved to encourage plantations in the far flung areas in Arunachal Pradesh and in Manipur.

The setting up of these new units is expected to provide employment opportunities to about 1,25,000 workers.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

DEVELOPMENT OF PROFILOGRAPH

The Central Road Research Institute, New Delhi has recently developed a profilograph which gives directly recorded profile of the pavment surface. This device when towed at walking speed of 3 to 5 kilometers per hour, recods the profile on recording paper to a convenient horizontal scale (about 1 in 180) and to verticle scale of full size. This recorded profile can then be examined for checking the acceptability of the finished construction, for knowing the location and the magnitude of roughness existing on the finished surface of a road or runway and also for other evaluations as may be needed.

The device comprises of an angle iron supported on four wheels, two in the front and two in the rear, with a pneumatic tyred wheel in the centre of the frame. The centre wheel in addition to its rotary motion is capable of moving vertically also while going over the surface profile. It further drives the recording paper through an appropriate reduction unit which reduces the length of the paper required in relation to the length traversed by the frame. The same wheel also actuates a pen marker which in turn marks the profile on the recording paper.

A few pieces of the machine have been fabricated at the institute and are put to practical trials. The performance has been found satisfactory.

Formerly, this type of machine was not available indigenously but had to be imported at an exhorbitant price. However, with the availability of the machine indigenously, the demad is expected to be considerable as most of the Public Works Departments and contractors will need this machine. The institute has already received a number of inquiries from various P.W.D.'s in this regard.

All the raw materials needed for the device are available indigenously. Any samll manufacturer having facilities for cutting, welding, drilling and turning can take up this work.

PHENACETIN

A process for manufacturing phenacetin which is used as an analgesic and antipyretic agent has been developed by the National Chemical Laboratory (NCL), Poona.

The process consists in reacting phenetidine with acetic acid in liquid phase under atmospheric pressure. The water of reaction is removed by entrainer. The unreacted p-phenetidine is completely reacted by using acetic anhydride. From the product, excess of acetic acid, unreacted p-phenetidine (if any) and entrainer are removed by distillation under vacuum. Phenacetin is recrystallized. The time cycle for main reaction for the process is about 8 hours. The laboratory has done work on 60 kg per batch scale. The product has been tested and found to conform to the specifications.

The raw materials required for the production of phenacetin are : P-phenetidine, acetic acid, toluene and acetic anhydride. P-phenetidine will have to be imported for the time being. Some quantity of this material is, however, being manufactured by Indian Drug & Pharmaceuticals Ltd. (IDPL), Hyderabad, for their own use. Besides, Jacketted reactor S.S. fitted with stirrer, reflux column condenser and separator, S.S. crystallizer, S.S. centrifuge storage and dissolving tanks etc. are the major items of plant and equipment. The entire equipment can be manufactured in the country by manufacturers of chemical machinery and quipment.

The present demand of phenacetin is mostly met by imports which have been of the order of 210 tonnes per annum in certain years. IDPL, Hyderabad and a few other firms are producing phenacetin. The target for this material by the end of Fourth Plan period has been put at 250 tonnes per annum.

PROCESSS FOR CLEANING AND DRESSING OF BRISTLES

A process for scouring, bleaching, dyeing softening and straightening of bristles has been developed by the Central Leather Research Institute (CLRI), Madras. Laboratory work on all these aspects of processing of bristles has been completed.

The plant and machinery required for the process will be the same as used by the existing bristle washing units.

Raw materials and auxiliary chemicals are all easily available in the country.

The process developed by the CLRI is significant as bristles are an important export item and have to be cleaned and dressed properly under Export Regulation.

DEVELOPMENT OF PHOTOSENSITIVE LACQUER

Defence Research Laboratory (Materials), DRL (M), Kanpur, has recently developed a photosensitive synthetic resin lacquer using photosensitive phenolformaldehyde resin and fumaric polyester resin which acts as a plasticizer and adjusts the molecular average of former resin, so that sharp change in solubility, on exposure to light, as in photography is obtained.

The lacquer is used in drawing microprinted circuits on copper clad surfaces and for printing on various surfaces such as glass metals, ceramics, plastics, wood, cloth, silk, paper and leather.

Defence requirements are of about 100 litres/annum, but the product may find good civil market when available.

Production of lacquer has been carried up to laboratory scale only and 1 litre lacquer per day has been produced. No pilot plant production has been done. Consumer acceptability reports have been received from a number of Institutions, who have used the lacquer produced by DRL (M), Kanpur.

The equipment required for the production of lacquer includes a reaction kettle of suitable size, ultra-voilet lamp and washing and drying arrangement. Apart from this, a small chemical laboratory with usual facilities and a chemist, is necessary for keeping quality control of the material. Raw materials required for this lacquer are available indigenously.

MUD THINNER FOR DEEP DRILLING

A mud thinner suitable for use in deep drilling has been developed by the Central Leather Research Institute (CLRI), Madras, using one of the largely available tanning materials.

The new product is stable at high temperature. It could probably be used as a substitute for imported products like LS-33, CL-20, Spercene and XP-20. This product may perform better than cutch extract which at present is partly meeting the demand for mud thinner estimated at 1200-1500 tonnes/year. The rest of the demand is being met by imports of products like LS-33 etc.

The product prepared at CLRI was comprehensively tested in their laboratory, and also in the laboratories of Oil and Natural Gas Commission, Dehradun and Oil India Limited, Duliajan, Assam and was found to be satisfactory. The Institute prepared 2 tonnes of the product in their pilot plant for field trials. The product when tested in one of Oil India's wells in Naharkotia, Assam performed satisfactorily. Further field trials in an out step well and an exploratory well are also cantemplated.

The raw materials for the production of mud thinner are all indigenously available. The product being a metallic derivative of myrobalan extract, could be prepared easily in any of the tanning extract manufacturing units without any additional equipment.

CHEMICAL TREATMENT OF INJECTOR CONES

Feed water injector fitted to steam locomotives contain bronze cones. Such injectors work under 12-14 atmospheric stream pressure. In normal service, these cones accumulate scale within 1500 km. run thereby reducing the efficiency of the engine. The conventional acid cleaning is time consuming and reduces the useful life of injector cones.

Defence Research Laboratory (Materials), DRL (M), Kanpur, has recently developed a suitable chemical treatment for the bronze cones which cuts down the rate of scale formation.

As the injector cone is fitted on each and every steam locomotive of Indian Railways and can be treated by this composition, the total demand of the product cannot be visualized precisely, but may be expected to be very large.

The stainless steel reaction vessel of 1000 litres capacity with electrical heating, stirring and cooling arrangement is required for the process. Some equipments for the quality control of ingredients will also be necessary.

PROGRESS OF LEATHER INDUSTRY IN INDIA

Although the East India vegeatable tanned and wet blue chrome tanned leathers constitute the bulk of India's export trade in leather, the Indian government and industry are following a conscious policy of producing and trading in high quality finished leather and leather products. This shift-over on to higher quality ranges is certain to yield better unit value realisation and create an image of the economy in the world markets as a producer of quality leather manufactures. Elaborate research and planning in this direction has already paid dividends and the contribution made by finished leathers to the total leather export trade is gradually improving. In fact, the Government's policy is to progressively eliminate the export of raw hides and skins and encourage manufactured varieties. In line with this objective, the entire leather industry is being geared up to scale further heights of export trade.

India has very rich resources of bovine population. Being the single largest live stock holder in the world, the country possesses about 240 million heads of cattle. The goat population has been estimated at 65 million and that of sheep at 42 million. The production of cattle and buffalo hides was of the order of 19.25 million pieces and 6.31 million pieces, respectively (1968-69). The output of goat skins and sheep skins in the same year was 44.6 million and 16.5 million pieces, respectively. The goat skins produced in South India have the reputation of high quality, in view of the superior construction of grain and structure of the fibre. The goat skins originating from the South have a

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smooth grain surface and are suitable for the manufacture of high class shoe uppers and quality garments. Likewise the sheep skins emerging from that part of the country are also different in quality compared to those avabilable elsewhere. In fact, the Indian goat and sheep skins are among the best available in the world.

Known in the world markets as kips, the Indian cow hides are available in a wide range of quality for a variety of end-uses. Among other skins available in India in abundance are reptile skins, not only of cobra but of vipers, whips, and water snakes. For fear of extinction, export of crocodile and python skins are not allowed for export. The lizard skins from India are particularly sought by sophisticated countries like U.K., France, Italy, Japan and Federal Republic of Germany.

The bye-products of tanning industry like tannery wool, and goat hair are also exported in substantial quantities, in a range of colours. Goat hair is used for the manufacture of felt, druggets, etc. and is able to withstand competition from synthetics and substitutes. Myrobalan fruit and myrobalan extract are the important tanning materials that India can offer for export. Besides, products like gall nuts and gambire extract are also exported.

Developed some two centuries back in South India, the East India tanning process is a unique process. The East India tanned goat and sheep skins of superior qualities are eagerly imported by Western countries where they are converted into sophisticated leather products. In addition, other tanning processes like chrome tanning are also used among tanning factories of India based on past practice.

In line with the policy of encouraging export in the semi-finished and finished leather and discouraging the export of raw hides the skins, recent trends in the export trade would reveal that the foreign exchange earning of undressed skins has gone down from the level of Rs. 36 million to Rs. 6 million in the first eleven months of 1970-71 and 1971-72 respectively, and that of leather and leather manufactures as also dressed and fur skins has improved in the comparable periods from Rs. 658.96 million to Rs. 796.51 million.

An important area among the leather manufactures which has substantially improved in export earnings relates to leather footwear. In 1970-71 the export value of this product was of an order of Rs. 100 million. U.S.S.R., U.S.A., Canada, U. K. and West Germany are the major importers. The production of leather footwear which was about 140 million pairs in 1968-69 is expected to be increased to 200 million pairs by 1973-74. The production in the large scale sector is about 16 million pairs and the rest emerges from the small scale and cottage sector, There is thus an obvious need to set up large number of mechanised units in the small scale sector particularly. The present plans indicate the possibility of setting up 150 mechanised small scale units during the Fourth Plan period.

A variety of other leather manufactures such as hand luggage, occupational luggage cases, leather gloves, leather apparel, travel goods, saddlery and industrial leather goods such as pickers, and leather belting is also available for export. The export value of these leather manufactures has been of an annual order of Rs. 10 million.

Indian tanners have not only succeeded in broad-basing the product range but also in diversifying the destinational pattern of their overseas supplies. New markets of Western and Eastern Europe as also Americas have been successfully secured for these products. Earlier the U. K. was the main entrepot market for Indian leather. Today Indian exporters have direct contacts with importers far and near, Europe and America, the Far East and South East Asia.

In the modern world where the emergence of synthetics and substitutes has posed a problem for the traditional products, leather and its manufactures still survive the race. This is a testimony to the intrinsic qualities of this known material vis-a-vis modern products. This is the reason why India's export trade in leather manufactures continues to contribute more and more to the country's foreign trade, thanks to the modern techniques being followed and new processes being adapted through scientific research and conscious planning. ☐

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EXPORT REVIEW OF AUTOMOBILE TYRES AND TUBES

From Rs. 41 and odd million in 1969-70 to Rs. 55 million in 1970-71 and further to an estimated Rs. 65 million in 1971-72, the export value of automobile tyres and tubes has been on ever uptrend. This dynamic sector has been supplying its products to several countries of the world, the important ones being Burma, Mauritius, Iran, Iraq, Arab Republic of Egypt, Greece, Fiji, Kenya, Sudan, Kuwait, Nepal, Australia, Rumania, Uganda, U.S.A., U.S.S.R., and Yugoslavia.

Tyres and tubes constitute the largest single area of rubber manufactures in the country accounting for about 50 per cent of rubber consumption. The production of various types of tyres and tubes during 1970 was: giant tyres (2.1 million numbers), giant tubes (1.7 million numbers), motor tyres (966,000 numbers), motor tubes (1.02 million numbers), motor cycle tyres (166,000) numbers; motor cycle tubes (194,000 numbers, scooter tyres (437,000 numbers), scooter tubes (326,000 numbers), truck tyres (186,000 numbers) and truck tubes (181,000 numbers). Besides, the industry turns out A.D.V. tyres and tubes, aero tyres and tubes and off the road tyres and tubes and cab tyres.

The production capacity is being raised from the persent level of 5.5 million numbers to 8 million numbers by 1973-74. Additionally, the existing units are also implementing expansion programmes. Tyres and tubes industry is one of the 54 priority industries in India that have been permitted to raise production to double the present licensed capacity.

Among the prominent Indian exporters of tyres and tubes M/s. Dunlop India Ltd. 15, Chittaranjan Arenue Calcutta-16, have improved their performance from Rs. 23.35 million in 1970-71 to Rs. 27.24 million in 1971-72. They exported automobile tyres, tubes and flaps to a number of countries including Yugoslavia, Arab Republic of Egypt, Cuba, Kenya, Singapore, Thailand, Burma, Fiji, Nepal, Denmark, Jordan, Chile, Iraq, Lebanon, Czechoslovakia, Australia, Korea, and Hungary.

Next in importance was M/s. Ceat Tyres of India Ltd. Bhandup Bombay-78. This company succeeded in sizeably improving its export performance from Rs. 9.8 million in 1970-71 to Rs. 23.98 million in the following year. Their products are popular in foreign markets far and near, including Kuwait, Iraq, U.K., Greece, Thailand, Czechoslovakia, Yugoslavia, U.S.S.R., Fiji, Iran, Sudan, Mauritius and Ethiopia.

M/s. Firestone Tyre and Rubber Co., of India Ltd., Hay Bunder Road, Sewree, Post Box 197, Bombay-1, exported about Rs. 6.8 million worth of tyres and automobile tubes and repair materials in 1971-72 to countries like Kenya, Uganda, Hongkong, Ghana, Mauritius, Seychelles, Sri Lanka and Thailand.

Auto tyres, tubes and motor accessories made of rubber were supplied by M/s. Goodyear India Ltd., New Delhi to the level of Rs. 4.43 million in 1971-72 mainly to Yugoslavia, Malaysia and Thailand.

Automobile tyres and tubes as also retreading materials by M/s. Madras Rubber Factory Limited Dhun Building 175/1, Mount Road, Madras-2. for which they received Rs. 3.75 million worth in 1971-72 from its customers in Ethiopia, Iraq, U.S.A., Mauritius and so on.

Among other exporters, M/s. Inchek Tyres Ltd., Leslie House, 19 Jawaharlal Nehru Road, Calcutta-13 supplied tyres and tubes to Sudan, Mauritius, Nepal, Yugoslavia while Premier Tyres Ltd. Bombay-1 exported to Cyprus, Burma, Mauritius, and Yugoslavia.

EXPORT OF DRY AND STORAGE BATTERIES

Batteries and accumulators constitute important segment of India's export trade in electrical machinery and apparatus. These items were exported to the tune of Rs. 25.79 million in the first eleven months of 1971-72. Of this, flash light batteries fetched Rs. 2.7 million, other dry cell primary batteries Rs. 9 million, wet cell primary batteries Rs. 1.98 million, the rest being accounted for accumulators. The Sudan turns out to be the most important market for flash light batteries as well as other dry cell batteries in the period.

With a total installed capacity of 469 million numbers of dry batteries, six units have produced 480 million pieces in 1970. The installed capacity for storage batteries is a little over 100 million numbers and actual production was 1.14 million numbers (1970). The dry battery industry in India produces a wide range of batteries for flash light, telecommunication, signalling and general purposes as also radio batteries. Starting with the manufacture of automotive batteries, the storage battery industry in the country has diversified its production to include heavy duty type for train lighting, air conditioning and telephone industries as also for Defence requirements like ligh weight wireless batteries and military transport batteries.

M/s. Standard Batteries Limited Uakola, Santacruz, Bombay-55, was approached by the Government authorities in Sudan and Indonesia for collaboration in the manufacture of batteries. The company entered into collaboration with the Government of Sudan for setting up a battery manufacture plant in their country with a capacity of 50,000 batteries per annum. The manufacture is to be taken up in stages. The assembly portion of the machinery manufactured by the

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Engineering Division of the company has already been despatched to Sudan and is under erection. The local personnel are also being trained by the Indian company in the assembly of batteries.

The Bombay battery company also agreed to entertain a similar project in Indonesia with the assistance of M/s. Tata Exports Limited, Annie Besant Road, Worli, Bombay. The project envisages the establishment of a factory in Indonesia with an initial capacity of 150,000 units and 6 volts and 12 volts batteries per year.

The firm has been manufactuing not only automobile batteries but batteries for heavy duty vehicles, omnibuses, tractors, aircrafts as well as wireless batteries for defence and in addition caters to the requirements of train lighting, telephones and telegraphs, carrier systems, power houses, receiving stations and switchger control. The company started manufacture of battery platform trucks some years ago. They have plans to manufacture sub-marine batteries also. They have developed batteries specially designed for mine locomotives and tunnelling.

INDIAN VACUUM FLASKS POPULAR ABROAD

The export value of vacuum flasks and parts is estimated to have reached a level of Rs. 4.94 million in 1971-72 as against Rs. 4.35 million in 1970-71, according to the Chemicals and Allied Products Export Promotion Council, Calcutta. The bulk of the export goes to the Soviet Union which has imported 405,455 numbers of flasks at about Rs. 3 million in the first eleven months of 1971-72. Bulgaria, Sudan, Sri Lanka, Kenya and Philippines constitute the major markets.

The entire export business in vacuum flasks is shared by four major exporters. M/s. Eagle Vacuum Bottle Manufacturing Co. Private Ltd. Bombay-3 supplied their flasks and insulated wares to the tune of Rs. 1.8 million in 1971-72, to Soviet Union, Yugoslavia, Hungary, Poland, Sudan, Switzerland, Ghana etc. M/s. Victory Flask Co. Private Ltd., Bombay-16 have doubled their export performance in this year at Rs. 1.5 million; their flasks and refills were exported mainly to Kenya, U.S.S.R., and Philippines. M/s. Jg Glass Industries (P) Ltd, Bombay have to their credit, an export earning of Rs. 1.2 million. Their supplies are directed mainly to Mauritius, Ceylon, Hongkong, Australia, U.S.S.R., West Germany and Philippines. The remaining export effort is contributed by M/s. Hindustan Vacuum Glass Ltd., Punjab whose supplies were mainly directed to Australia, Singapore and Poland in 1971-72.

BOOST IN EXPORT OF DYESTUFFS

Overseas supplies of Indian dyestuff industry have been increasing from year to year. From an export turnover of Rs. 2.98 million in 1967-68 the foreign exchange earning of the industry was nearly fourfold at Rs. 11.20 million in 1968-69. The export value further increased to Rs. 15.34 million in 1969-70 to reach a high figure of Rs. 24.10 million in 1970-71. During the first eleven months of 1971-72, the export earning was of the order of about Rs. 22.43 million.

The 1971-72 export composition for the eleven months was : acid dyes Rs. 2.21 million, basic dyes Rs. 2.08 million, direct dyes and sulphur dyes Rs. 5.72 million, disperse dyes Rs. 0.23 million, solvent dyes and organic pigments Rs. 2.73 million, reactive dyes Rs. 2.55 million, vat dyes Rs. 4.30 million, and other organic synthetic dyes Rs. 2.60 million.

Contributing to the export effort, one of the manufacturers in the line, M/s. Indian Dyestuff Industries Ltd., Mafatlal House, Backbay Reclamation, Bombay-20, were successful in effecting exports worth Rs. 15 million during 1971-72 registering an improvement of 30 per cent over their previous year's performance. The company is able to compete successfully in sophisticated markets abroad.

During the year 1971-72, the firm received a letter of intent for the manufacture of reactive dyes of 180 tons per annum. It also got an industrial licence during the year for increasing its capacity of anthraquinone from 1000 tons to 2200 tons per annum. The Bombay firm is taking steps to implement the expansion.

STEEL PIPES AND TUBES IN EXPORT TRADE

Iron and steel tubes, pipes and fittings earned foreign exchange worth Rs. 97.69 million in the first eleven months of 1971-72 (April 71-February 1972). In the corresponding period of 1970-71, the export value was Rs. 92.91 million.

Of the 1971-72 export valve, cast iron tubes and pipes earned as much as Rs. 10.74 million; pipes constituted the major item of supply in the line, at Rs. 8.86 million. Singapore, Hongkong, Kenya, Tanzania and U.S.A. were the major importers. Iron and steel tubes and pipes (other than cast iron) fetched Rs. 57.41 million. Of this galvanised variety alone secured Rs. 43.64 million. Additionally cast iron tube and pipe fittings secured Rs. 11.1 million while galvanized fittings earned Rs. 15.73 million and non-galvanised variety fetched Rs. 2.13 million.

M/s. Bharat Steel Tubes Ltd. 14-15/F, Connaught Place New Delhi-1 exported to the tune of Rs. 11.8 million during 1971-72. The firm has to its credit a Certificate of Export Recognition by the Engineering Export Promotion Council for outstanding export performance for the year 1970-71. The firm's Works at Ganaur, Haryana have an installed capacity of about Rs. 0.14 million tonnes of steel pipes and tubes.

PRINTED MATERIALS SECURE MORE FOREIGN EXCHANGE

Printed matter worth Rs. 17.6 million was exported by India in the first eleven months of 1971-72 as against Rs. 12.7 million in the corresponding period of 1970-71 (April–February). Printed books and pamphlets, including maps fetched Rs. 10.88 million. In fact over 80 countries imported printed books of which Nepal, Singapore, Kenya, German Federal Republic, Malaysia, Netherlands, Nigeria, Philippines, U.K., Sri Lanka, Burma, Afghanistan and Australia are important. Export of news papers and periodical journals secured Rs. 3.14 million while picture post cards and greeting cards fetched nearly Rs. 1 million. Paper and paper board, calendars, printed advertising matter, printed pictures, photographs etc. were the other categories of export in the line.

Among the individual firms who contributed to the export effort in printed matter, M/s. Matilal Benarsi Dass, Delhi was responible for a foreign exchange earning of Rs. 0.67 million during 1971-72 for their overseas supplies of books to countries like U.S.A., U.K., Japan, Canada, Italy, Netherlands and France. M/s. Chatwani & Shah Pvt. Ltd. Bombay-3, is another firm active in the export of books and periodicals having secured Rs. 0.55 million during 1971-72. They supplied mainly to Kenya, Kuwait, Bahrain, U.K. and Abu Dhabi. M/s. Impex India, New Delhi-1, is yet another firm that succeeded in exporting books and publications worth Rs. 0.48 million to U.S.A., West Germany, U.K., Netherlands and Australia.

EXPORT PERFORMANCE AND POTENTIAL

RECENT TRENDS IN INDIA'S EXPORT TRADE

Taking into account the value of exports to Bangla Desh at about Rs. 318 million, the rate of growth in India's export trade approximated 5 per cent in 1971-72 over the previous year. Exports over the first three years of the Fourth Five Year Plan period (ending 1973-74) rose by about 6 per cent per annum as compared to the plan target of 7 percent rate of growth. The Indian Government's intention is to further expand exports to the socialist countries. Trade with the developing countries also offers considerable scope for expansion. Exports in the long run could only rise if the pace of industrial production is adequate to guarantee a rise in rate of exportable surplus, stated India's Foreign Trade Minister, Mr. L. N. Mishra, while recently addressing the Board of Trade Meeting.

India has a limited payment arrangement of Rs. 250 million on both sides with Bangla Desh. From the Indian side a number of items are sold to Bangla Desh which would have substitutable demand from other countries while from that country India receives certain vital items like raw jute and newsprint that are essential for her domestic requirements. Over and above, the Limited Payments Arrangement, trade between the two countries is in free foreign exchange.

Referring to the domestic constraints against rapid increase of exports, the Minister stated that in the long run, exports could increase only if the rate of growth of the industry and the supporting infra-structure was adequate to generate and sustain an exportable surplus for the 7 per cent rate of growth stipulated for the plan. In respect of the traditional sector of exports which continues to have considerable weightage in the country's total exports, it is important to recognise that even minor falls in their exports may not be compensated by large increases in non-traditional exports. Again, intensive efforts are to be made for retaining the share of traditional exports in the world markets where not only there is growing competition, but an increasing tendency for the substitution of natural products by synthetics. The threat of synthetics is particularly true in respect of jute as also in the form of increased demand for instant tea and synthetic forms of shellac or coir. That a great deal of research and development is necessary for diversifying the use of natural products and their adaptation to changing consumer tastes and specifications abroad is recognised in India.

In respect of non-traditional industries, the Minister stated that their exports must rise at 15 per cent to 20 per cent per annum for a 7 per cent rate of overall export growth. In the case of engineering goods and chemical and allied products which constitute critical areas where rapid expansion could take place, exports have been showing a tendency somewhat on the slackening side. The inadequate rate of growth in the engineering sector is mainly due to the acute shortage of steel. Adequate arrangements have been made to make the imported steel available to exporters on a priority basis and at international prices. Nevertheless, steel shortage might continue to hamper the export effort in this line. Government are no doubt aware of the situation and are taking every step to ensure that raw materials like steel are made available to exporters at international prices.

The role of the public sector agencies in the management of India's foreign trade has been greatly strengthened. As a result of progressive canalisation of import, nearly 76 per cent of the country's total imports are now handled through public sector agencies. In respect of exports, about 25 per cent of the total is canalised through these agencies. "We intend to further increase the role of the public sector in the management of our external trade," stated the Minister.

As to the new corporations that have recently come up like the Jute Corporation, the Tea Trading Corporation, the Cotton Corporation, the Tobacco Board, and the Marine Products Development Authority, (a separate corporation for handling the exports of textiles is to be established), their objective has been stated to be to protect the interests of growers and to prevent their exploitation by the middle man. In this context, two public sector Corporations, namely, the State Trading Corporation of India and the Minerals and Metals Trading Corporation have fared well during 1970-71. The STC increased its exports by 31 per cent, imports by 45 per cent and its profits by 136 per cent while the MMTC has functioned with credit despite the acute recession in the Japanese steel industry and certain internal constraints like transport bottlenecks.

A review of recent export trends would indicate a progressive geographical destination of India's exports. In the last 12 years, exports to the socialist countries have been the fastest growing segment of the country's export trade. The growth of trade with the socialist world enabled India to import many products considered to be essential in her development which she could not have imported from elsewhere for want of foreign exchange. "It is our intention to further expand our exports to the socialist countries consistent with the availability of imported goods considered essential for our development". Also recently India has been endeavouring to explore possibilities for increasing exports to the developing countries of Asia, Africa and Latin America. In this connection, the Minister added that most of the developing countries export a limited range of products whose demand is presently limited. "We are exploring ways and means to overcome some of these handicaps which stand in the way of mutually beneficial expansion of trade and economic cooperation between us and other developing countries".

In Western Europe, the forthcoming enlargement of Europeon Economic Community will have a profound impact on the pattern of international trading relations. The enlarged community will account for nearly 40 per cent of the world trade. India has been trying for the last several years to negotiate a comprehensive economic cooperation agreement with the EEC. This became imperative after U.K.'s decision to join the EEC as it would result in the termination of Indo-U.K. Trade Agreement of 1939 which gave India a preferential access to the U.K. market for a wide range of her products. The Minister expressed hope in this connection that it would be possible for the EEC to conclude a commercial cooperation agreement with India in order to safeguard India's essential trading interests.

EXPORTS THROUGH STATE TRADING AGENCIES

While the Government of India's policy is to take over export trade in a progressive manner, about 25 per cent of Indian exports would be handled by the public sector agencies in the current year, i.e. 1972-73. This percentage has been arrived at, based on current export policies and the level of exports in the preceding year.

The commodities the export of which is canalised through State Trading Agencies include-Iron and Steel (other than cast iron pipes and fittings) products, namely, cast iron borings, detinned scrap, mill scale scrap, iron skull scrap, broken/semi-broken ingots moulds, bottom plate scrap, mild steel turnings and borings in bulk/loose in bags/brivuettes, No. 2 quality sheet cuttings and punchings loose/in bags/hand bundles/hydraulically pressed bundles/stickers, No. 2 and No. 3 quality sheet cuttings and punchings in hand bundles/hydraulically pressed bundles/bales, steel skull scrap, tool and alloy steel scrap containing alloying elements (like tungsten, molybdenum, vanadium etc.) other than stainless steel scrap; silicon sheet cuttings, broken/discarded chilled rolls, dried fish other than prawns, sharkfins, fishmaws, beachde-mere and Bombay ducks, Human Hair, wigs and wiglets and other articles made partly or wholly of human hair, bauxite, iron ore, manganese ore, coal and coke, ferro manganese/ferro manganese slag, handloom fabrics of variety commonly known as 'Bleeding Madras', garments made out of Bleeding Madras, cellulosic art silk fabrics, nylon fabrics, de-oiled groundnut cake (extractions), lemongrass oil, kuth, salt; footwear, uppers of which are made wholly or partly of leather, cement, knitwear (woollen and mixed); chillies, dried in any form other than powder, castor/oil, mica (except manufactured and fabricated mica), sillimanite ore and wagons.

RELAXATION OF EXPORTS FOR JOINT VENTURES

The Government of India have recently decided to relax, to some extent, current restrictions on export of capital for joint ventures abroad. At present Indian equity participation in joint ventures abroad is required to be normally met through export of plant, machinery, equipment and technical know-how. Other items are not permitted to be capitalised.

Government have now decided to consider on merits of each case the "question of permitting capitalisation of export proceeds of items like structurals, steel items, construction materials, if the export value of machinery etc. falls shorts to make up the necessary reasonable equity and if there is need to retain Indian holding at a level higher than obtainable through exports of capital goods" stated the Union Deputy Minister of Foreign Trade.

LABORATORY EQUIPMENT PRESENTED TO LAOS

The Government of India have presented to the Royal Government of Laos equipment of two sediment testing laboratories at Pakse and Vientiane in Laos. The Minister for Public Works and Transport, Laos, who received the present on behalf of his Government welcomed the interest shown by the Indian Government in the development of hydraulic resources in Laos.

TRANSFER OF FOREIGN INDUSTRIAL PLANTS TO INDIA

The Government of India have received four proposals for transfer of industrial plants from abroad. They relate to the transfer of a plant from U.K. for the manufacture of L.T. switchgears, of tooling, jigs and fixtures from U.K. for the manufacture of super shapers (machine tools), A plant again from U.K. for the manufacture of internal cumbustion engine parts and a plant from Netherlands for production of hydraulic jacks and shock absorbers.

The first proposal related to the switchgear plant is of an import value of Rs. 1.35 million. The U.K. company that is willing to transfer the plant is M/s. Ottermill Switchgear Co. and the Indian company that is purchasing the plant is M/s. Easun Engineering Company 5-7, Second Line Beach, Post Box No. 95, Madras. The transfer involves outright purchase but no foreign equity participation or royalty or engineering know-how fee is involved. The production of Rs. 13 million worth of LT switchgears with a 5 year period is guaranteed for import into U.K. and third markets by the transferring company to the country. The proposal has received due approval from the Government of India.

The transfer of tooling, jigs and fixtures with a c.i.f. value of Rs. 0.47 million by M/s. Butler Machine Tools Co., Halifex, U.K. is to be effected to M/s. Kirloskar Bros. Ltd. Sangli, Maharashtra. The super shapers manufactured by the transferred plant are meant for export. No foreign exchange will be involved in the importation of the tooling, as its cost is to be adjusted against the exports to be made by the Indian company to the U.K. The collaborator has made a firm commitment for importing from India the entire output approximating Rs. 2 million worth of super shapers for the first two years. As the particular sizes of the shapers to be exported have gone off the production range of the U.K. company, it is expected that U.K. would continue to be a market for the concerned Indian machine tools for a longer period. In this deal too, no foreign equity participation or royalty as a result of the transfer of tooling is envisaged. This proposal has also received the approval of the Indian Government.

The transfer by the U K. firm for the manufacture of internal cumbustion engine parts valued at Rs. 0.6 milllon will be by M/s. Norton Villiers to M/s. Srivatsa Exporters, Madras. The plant is being transferred on a free loan basis to India for a period of ten years at the end of which the Indian transferee will have the option to repatriate that plant to U.K. The export earning from the transfer is estimated at Rs. 1 million per year initially and would go up to a level of Rs. 20 million gradually. The entire production under the deal will be exported and the transfer does not involve either foreign equity participation or royalty or engineering fee. This proposal has also been approved by the Indian Government.

The plant to be imported from Netherlands is worth Rs. 1.2 million. M/s. Janson Fabreiken N.V., Rotterdam will transfer it to M/s. Associated Engineering Works, Delhi. It was stipulated that 25 per cent of the production of hydraulic jacks and shock absorbers from the plant should be exported. The foreign company would have a share of 40 per cent against which the payment for the plant would be set off. In addition, royalty of 5 per cent on sales has been allowed. The proposal has been approved by the Indian Government.

In all the four cases the import of the plant is subject to the conditions that its good maintenance, useful life and reasonable value are certified by internationally reputed assessors and chartered engineers.

EXPORT REVIEW OF TEXTILE PRODUCTS

Textile products of cotton, woollen and silk origin have been contributing substantially to India's export dynamism in recent years. The export range has been gradually diversified and a prominent shift is noticeable in respect of the direction of these exports.

Export of cotton textiles during 1971-72 was estimated at Rs. 1103 million. Of these, the share of piecegoods was Rs. 662 million while yarn contributed Rs. 139 million, cotton apparel Rs. 125 million, hosiery Rs. 5.5 million and other categories Rs. 179 million. There has been a particular improvement in the export of cotton readymade garments and hosiery.

To provide further boost to the production base of cotton textile exports, the mill industry has been allowed to expand capacity on a liberal basis. For instance, installation of wide width looms of 64″ reed space is being allowed without export obligation. Installation of looms for the manufacture of corduroy is being allowed on an export obligation equal to 50 per cent of production every year. The installation of shuttleless and canvas looms is allowed without any export obligation. Mills with an export performance of more than 10 per cent are permitted to import sophisticated machines without any export obligation. Schemes have been evolved for financial facilities for exporting mills for effecting modernisation. To meet the tastes and specific requirements of consumers abroad particularly in the U.S.A. and West European countries, registered exporters are being allowed to import fabrics of specified variety for the manufacture of readymade garments under customs bond. Under the scheme, availability of fabrics at international prices which the mills in the country are not in a position to manufacture is being ensured. A deal with U.S.S.R has been recently signed whereby India would receive 20,000 tonnes of cotton for conversion into fabrics and other cotton manufactures for export to U.S.S.R. Another such deal is being negotiated for sewing thread with the Soviet Union under which India will receive cotton from that country for manufacture of threads to be sent back to U.S.S.R.

In respect of woollen textiles, exports during 1971-72 increased to Rs. 326.3 million from Rs. 322.3 million during 1970-71. Woollen hosiery exports during 1971-72 reached a record figure of Rs. 134.6 million against Rs. 121.5 million in the previous year. The traditional items, namely, carpets, druggets and namdahs registered a 4 per cent increase at Rs. 4.39 million. Shawls and Lohis also witnessed an up trend.

With a licensed capacity of 83,295 woollen spindles, 23,028 shoddy spindles and 154,610 worsted spindles, 95 composite and spinning units in the organised woollen industry are estimated to have produced 81.92 million lbs. of worsted yarn, 12 million lbs. of shoddy yarn, 49.57 lbs. of woollen carpet yarn, 32.44 million lbs. of wearable cloth and 40.56 million lbs of wearable hosiery. In the year, production showed improvement in all the categories over the previous year.

In order to further improve exports, steps were taken to improve and diversify sales to General Currency Area Countries. Over 90 per cent of the exports are now directed to Rupee Currency Areas. Some of the other measures taken for export expansion include the import of wool tops and dyed acrylic fibre/tow or yarn against export of woollen products.

In the area of silk and silk products, export was of the order of Rs. 75.9 million in 1971-72. Of this, scarves and stoles contributed Rs. 17 million, dress material Rs. 21 million, sarees Rs. 10.3 million, tassar Rs. 13 million, readymade garments Rs. 6 million and ties Rs. 3.5 million. India-made silk scarves and stoles have gained popularity in international markets particularly in recent years. The declining trend in silk exports in the last few years is being closely examined by the Indian Government and exporters alike. The production and marketing techniques are being gradually tuned in line with the fashion requirements abroad.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

STEEL AVAILABILITY FOR EXPORT PRODUCTION

To meet the shortfall in the availability of indigenous steel for export production, the export policy for iron and steel is being so regulated by the Government of India for the past few years that maximum quantity of the indigenous material would become available to the exporters of fabricated engineering products. To facilitate engineering exporters requiring steel as raw material, it has been stipulated that the exporters could execute their export orders even by getting steel supplies from imports. The supply is made by M/s. Hindustan Steel Limited. The scheme covers nine categories of steel, namely, M. S. Billets, M. S. Wire Rods, High Carbon Wire Rods, Bars and Rods, H. R. Strip/skelp, M. S. Angles, M. S. Structurals such as Beams, Channels, etc., M. S. Plates and Hot rolled/cold rolled sheets. To start with, M/s. Hindustan Steel are arranging bulk import of 47,000 tonnes of steel for meeting special requirements.

The imports are made on the basis of the demands placed by the Engineering Export Promotion Council, Calcutta.

Steel production in the country has not been able to cope up with the rising demand particulary due to the revival of industrial activity in the post recession recovery. To meet the gap in supply, imports have been allowed to actual users and registered exporters. In 1970-71, the fabricators of engineering goods for export were allowed to import any category of mild steel against firm export orders. This was in addition to the normal supply from indigenous sources and the normal policy for import and bulk import through Hindustan Steel Limited. Actual Users in the small scale sector have been accorded additional import facility to the extent of 25 per cent of what they received in 1970-71 under the import licence/release orders. For the exporters of tubes, bulk import was allowed through Hindustan Steel Limited. For exporters of transmission towers, exporting units were allowed to import certain quantities of structurals.

Thus the growing need for steel as raw material for exporters is being met to the extent possible either from indigenous resources or from imports.

HYDEL POWER IN HIMACHAL PRADESH

Large scale plans involving siz eable investment are being drawn up by the Himachal Pradesh Government to tap the hydro-power potential of the State. It is estimated that the total hydro power generation potential of the State is as much as 8250 MW at 60 per cent load factor. Of the aggregate hydropower reserve of entire India, about one-fifth is estimated to be available from the State. Already large hydel projects have been taken on hand. These projects include the Giri project in Sirmur district, Uhl project in Mandi district, Bairi Siul project in Chamba district, Kol dam in Bilaspur district and Prabati valley hydel project in Kuli district.

Estimated to produce 60 MW of power, the Giri project is expected to provide the facility of irrigation to nearly 13,000 acres of land. After completion, the Uhl project is to yield 45 MW of power as against its current production of 35 MW. At a very low price about 207 MW is evnisaged to be generated by the Baira-Siul project while the Kol dam project will generate 875 MW of power. Two hunderd MW is supposed to be the expected capacity of the Prabati valley Hydel Project.

In addition to the above a number of medium and small schemes are also being considered by the State Governmet. Nearly 2,600 villages have already been electrified in Himachal Pradesh out of 10,431 villages in the State.

AGRICULTURAL PROGRESS IN PUNJAB

Punjab has been in the vanguard of India's Green Revolution. Through the use of improved inputs of fertilizers and other modern farming techniques, the State has made good progress in wheat cultivation and is now poised for achievements on the rice front.

The index of agricultural production in the State has gone up nearly four-fold during 1950-51 and 1970-71. Average wheat yield per hectare rose from 1124 kg. in 1966-67 to 2238 kg. in 1970-71. The yield per hectare of rice improved from 1185 kg. to 1765 kg. in the comparable years. The increasing trend in foodgrain production has prompted the State to revise the Fourth Plan target (1973-74) to 8 million tonnes as against the original 7.28 million tonnes.

Compared to 1968-69's production of 5.3 million tonnes, foodgrains yielded 7.31 million tonnes in 1970-71. The anticipated foodgrain production in 1971-72 is 7.35 million tonnes.

On the rice front, there has been a considerable expansion in the area under cultivation of high yielding varieties - IR-8 and Jaya. It is expected that Punjab will provide to the central pool nearly 750,000 tonnes of rice in 1971-72 as against 414,000 tonnes in the preceding year.

The extensive cultivation having reached optimum the State is now taking resort to intensive cultivation by the application of modern production means such as better irrigation, multiple cropping, improved and high yielding seed varieties, fertilizers, pesticides, farm implements like tractors and other mechanical equipment etc. Irrigational facilities in the State have improved to the level of 71.3 per cent of the net sown area in 1970-71 as compared to nearly 53 per cent in the year 1950-51. High yielding seeds are being used in abundance since 1966-67. In 1970-71 over 60 per cent of the total area under wheat was sown with high yielding varieties when it was a meagre 3.5 per cent in 1966-67. Multiple cropping has gradually gone up from an area of 626 hectares in 1950-51 to as much as 1625 hectares in 1970-71. Between 1967-68 to 1970-71, the use of chemical fertilizers has grown from 258,000 tonnes to 1.5 million tonnes. In respect of improved farm implements, Punjab happens to be the State with the highest number of tractors in the whole of India.

NEW INDUSTRIAL PROJECTS IN UTTAR PRADESH

India's public sector is poised for creating a fresh chain of industrial projects in the State of Uttar Pradesh. The industrial ventures will be both small and large sized.

The Alloy Steel Factory at Kanpur, for instance, is being presently set up at an estimated investment of Rs. 400 million. A big electronic unit is coming up at Ghaziabad (Bharat Electronics) with an investment of Rs. 170 million. At Naini (Allahabad) M/s. Bharat Pumps and Compressors will involve an investment at over Rs. 120 million. The Indian Telephone Industries Limited, Bangalore propose to set up two units in U.P., one to manufacture transmission equipment at a cost of more than Rs. 70 million while the other unit will manufacture telephone instruments at an investment of Rs. 50 million. A project for the manufacture aircraft accessories is almost complete at Lucknow as a wing of the Hindustan Aeronautics Limited, Bangalore. A factory is being completed for cement manufacturing at Dehra Dun.

A number of industrial units to manufacture a variety of products like cement, GLS and fluorescent tubes, safety razor blades, graphites, scooters, steel billets, light commercial vehicles and printing machinery etc. are coming up under the aegis of U.P. State Industrial Corporation which has already a number of projects on hand for the manufacture of fertilisers; writing, printing and wrapping paper; nylon filament variety, refractories, polyester film, caustic soda, watches and electric metres.

The U.P. State had only 73 large scale manufacturing units, mainly of sugar, textiles and oil, wayback in 1951. Their number has risen (January 1972) to 404 for the production of an array of products like fertilizers, rayon yarn, aluminium, parts of machinery, synthetic rubber, television/,sets, caustic soda, liquid chlorine, steel casting, alloy wire, nylon yarn, galvanised steel pipes and tubes, transformers and electronic goods. The Hindustan Aluminium Corporation Ltd. at Mirzapur claims to have contributed two-fifths to the country's total production of aluminium - 78,000 tonnes against the total of 178,000 tonnes (1971).

Among the other major public sector projects established in U.P. are Bharat Heavy Electricals Limited in Hardwar, Fertilizers Corporation of India in Gorakhpur, Antibiotics Plant at Rishikesh, Diesel Locomotive Works in Varanasi, the Singrauli Coal Fields, Tribeni Structurals at Naini (Allahabad), Deep Freezed Meat Plant at Tundla (Agra) and the Modern Bakeries in Kanpur.

IRRIGATION IN RAJASTHAN

With two-fifths of its area covered by sand and the best part of its agricultural effort based on monsoon, the State of Rajasthan has taken up the challenge to improve its irrigational facilities. The importance given to provide a sound irrigational infra-structure to the State is revealed by the fact that out of a total outlay of Rs. 3160 million for the Fourth Five-Year Plan, as much as Rs. 1950 million have been earmarked for irrigation and power.

Already the State has undertaken the completion of a number of irrigation projects. The Rajasthan Canal, claimed as the largest man-made canal in the world with a length of 690 kms. has been constructed. The waters of Chambal and Sutlaj are being harnessed and Mahabajaj Sagar Project scheme has been initiated all to supply water to the State.

The Bhakra Nangal project in which Rajasthan has a share of over 15 per cent envisages irrigation of nearly 570,000 acres of land in the State. The Rajasthan Canal based on Ravi and Beas rivers on completion will double the present irrigated area in the State. Its first stage upto 124 miles is to be completed by 1974.

The Chambal valley development scheme which is in collaborarion with Madhya Pradesh covers the construction of three dams and a barrage with a net-work of a canal system. Under the scheme the Jawahar Sagar Dam, the Gandhi Sagar Dam and Rana Pratap Sagar Dam have been completed.

INDIAN EXHIBITION IN OLYMPIC CITY

To coincide with the 20th Olympic Games at Munich (West Germany), the Exhibition of Indian handicrafts and industrial goods was opened recently. The Exhibition provides a glimpse of the exquisite products of ancient skills in India and how these skills are put to modern use.

The Handicrafts and Handloom Export Promotion Council organised a fashion show at the Exhibition where several Indian dresses made by Indian craftsmen and renowned couturiers were exhibited.

The traditional image of India as an agricultural country is changing into that of a country "pulsating with industrial and scientific progress", stated the Indian Ambassador in West Germany, while opening the Exhibition. The old arts and skills of India are giving the country the biggest boost to imbibing newer currents of thought and techniques and move forward in the modern age. Herr Philip Held, Minister of Justice of the Bavarian State congratulated the Indian Government for organising this "extremely impressive" exhibition. He said that the exhibition showed how India was changing from an agricultural to an industrial country.

EXPANSION SCHEMES FOR NANGAL FERTILISER PLANT

As a part of the programme for fertiliser production, the Government of India have finalised the expansion scheme for the Nangal fertiliser plant.

The project will be based on fuel oil as feed-stock. Under the programme the electrolyser and ammonia plants of the existing Nangal plant will be gradually replaced. This will result in direct reduction of power requirements of the existing units from 164 mw. per day to 36 mw. per day. The cost of the expansion project has been estimated at Rs. 736.2 million. Of the total cost, the foreign exchange element will be of the order of Rs. 391.5 million.

With the completion of the project, the production capacity of the Nangal Plant would be 900 tonnes of ammonia per day. Of this, 600 tonnes per day would be used for production of 1000 tonnes of urea per day. The remaining 300 tonnes of ammonia will be utilised for maintaining the present production of 80,000 tonnes of nitrogen per year in the existing plant as calcium ammonium nitrate.

A number of other schemes have already gone into operation under the programme of the production expansion. A Rs. 450 million Cochin Fertiliser Complex of M/s. Fertilisers and Chemicals Travancore Limited (FACT) has completed its first phase and is now ready to commence production. The designed production capacity of the plant has been estimated at 3,30,000 tonnes of urea per year. The second phase envisages capacity of 5,00,000 tonnes of chemical fertilisers. After completion of this project, the fertiliser production capacity of the FACT would be of the order of 1.17 million tonnes.

Similarly the Rs. 650 million Madras Fertiliser Plant near Manali, Madras has already commenced production in 1971 and has achieved 80 per cent of the installed production capacity in the first three months of its operation.

The Manali project having the largest single stream ammonia plant in India, is also expected to attain a level of production at par with the installed Capacity. The NPK granulation plant with a capacity of 1100 tonnes per day in two streams is also the largest in country. The annual production when in full swing, would be of the order of about Rs. 600 million. An annual saving of Rs. 550 million in foreign exchange as a result of reduction in fertiliser imports is expected when the plant begins to operate to full capacity.

The Sindri fertiliser expansion scheme at a cost of Rs. 950 million, is expected to yield an additional 1,70,000 tonnes of Nitrogen leading to a production of 40,000 tonnes of ammonium sulphate and 3,80,000 tonnes of urea. The additional fertiliser production at Sindri will give another Rs. 200 million per year. The saving by import substitution is expected to be around Rs. 190 million.

The production capacity of the Trombay Fertiliser Unit will also expand from 100 tonnes per day to 125 tonnes per day in respect of methanol plant and from 320 tonnes per day to 360 tonnes per day as regards the ammonia plant. Under the units' diversification programme, another unit for production of methylamine is being set up. Methylamine is a raw material for the production of a variety of agro-chemicals. The Trombay Fertiliser plant is producing 120,000 tonnes of nutrients.

The Fertiliser Corporation of India too envisages a five fold increase in production of fertilisers in the next five years.

Besides, some new units expected to be set up in the country in the next 4 to 5 years will be located at Durgapur, Barauni, Ramagundam, Talcher, Haldia, Trombay (expansion), Namrup (expansion) and Sindri (rationalisation). In terms of plant nutrient, the production is estimated to rise from 400,000 tonnes in 1970-71 to 2.5 million tonnes in 1975-76.

THIRD PHASE OF DRILLING AT SURINSAR

The cement casing of the exploratory well being drilled by the Oil and Natural Gas Commission at Surinsar, near Jammu is likely to be lowered towards the end of August 1972 when a drilling depth of over 3,900 metres would have been reached. The well has already been drilled to a depth of 3657 metres. The well is to be the deepest in Asia, and is targetted to reach a depth of 6,000 meters.

With the lowering of the next casing the project will complete the third phase of its drilling.

NEW DOCK AT HALDIA TO BE READY SOON

India will soon be able to handle larger ships and provide fast loading and unloading facilities for bulk cargo. A new Dock system under construction at Haldia is expected to be commissioned by the end of 1973.

With the commissoining of the Farakka Barrage and the establishment of the new refinery and other industries in the area, there would be a substantial increase in traffic at the Port and improvement in its economic viability. The dredging commitments up to the estuary are also expected to come down with the commissioning of the Farakka Barrage.

Meanwhile the difficulties involved in river dredging and river maintenance in the Calcutta Port area are being tackled with Central assistance. The traffic handled by Calcutta Port had come down from 11 million tonnes in 1964-65 to about 6 million tonnes in 1970-71 but had shown improvement inl 971-72 with a traffic of about 7.3 million tonnes. The main reasons for this decline were the reduction in imports of foodgrains and capital goods coupled with the limitations of a riverine port in entertaining large sized modern bulk and ore carriers.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

AUTO RUST AND SCALE INHIBITOR DEVELOPED

To overcome the corrosion and scale formation, suitable inhibitors have been developed by the Defence Research Laboratory (Materials), Kanpur. Inhibitors when incorporated in mains water inhibit the corrosion of cast iron, mild steel, copper, aluminium and solder, representing materials of construction of engine cylinder head, block, radiator tube and water pump and also prevents scale formation in the circulatory system.

Mains water is used as coolant in the rediators of C engines in vehicles. When plain water is used, corrosion of the cylinder head/block, radiator, water tank occurs. Corrosion also results in the build up of sludge of corrosion products in the lower waterways of the engine, so that the circulation of coolant is impaired and engine runs hot. Calcareous scale is deposited from hard mains water on the waterways walls and radiators which impedes heat transfer rate.

These corrosion inhibitors are supplied in different packages e.g. larger packages for the preparation of initial coolant solution and smaller packages for the inhibition of water used for topping up.

The inhibited coolant water can be advantageous in many respects. It protects all metals present in the cooling system from corrosion and prevents the formation of hard water scale in cooling system. It does not interfere with the efficient engine cooling and does not have adverse effect on rubber hose connections. Further it does not have bad effects on automobile finishes. It does not foam and is not toxic. It is also free from any unpleasant odour.

The developed auto rust and scale inhibitor concentrate is packed in 5,250 and 500 ml. pechs to make 1.5 and 10 litres of inhibitor coolent solution for use in vehicles.

COLD WEATHER MASK DEVELOPED

To overcome discomfort of cold and wind on face and inhaling the cold air at high attitudes under low pressure conditions, a cold weather mask has been developed by the Defence Research Laboratory (Materials) Kanpur.

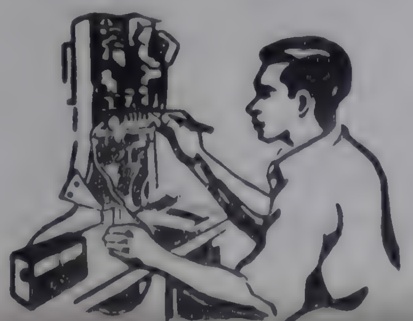
The developed cold weather mask allows comfortable breathing at high attitudes and cold and windy regions. Besides this, the cold weather mask gives protection against chapping of lips, wind burn, Angina pectoris and respiratory infection. It is not inconvenient to wear and is also quite durable. The trial of the developed mask has been conducted in various conditions-which ranged from minus 32°C to plus 4°C, calm to storm wind upto 40 knots, clear to heavy snow fall (at the rate of 1 inch per hour) and from 3500 feet to 17,000 feet altitudes. In addition to this, effectiveness of the developed mask was also observed during performance of several outdoor duties such as sentry duty, patrolling, hill climbing, running, route marches day and night.

This developed mask has been made from non-woven bonded fabrics. The raw material required in fabrication of the mask is available indigenously. Besides, no special type of plant and machinery is required for manufacture of the mask. Suitable numbers of dies of aluminium metal and incubators for temperature control (150° ± 5°C) are only required for production.

METAL POWDERS BY ATOMISATION

The National Metallurgical Laboratory, Jamshedpur have recently developed a process for production of metal powders of aluminium and zinc by atomisation. The process consists of atomising a stream of molten metal and controlling the particle size of the powder. The atomising equipment can be fabricated indigenously.

The Metal powders of aluminium and zinc are used for various purposes like reducing agents, paints manufacture and powder metallurgy application. The processing industry plant can be operated as an independent unit to produce powders for sale or as an ancillary unit to a plant using the powder for processing.



PRINCIPAL ITEMS OF EXPORT

(in million Rupees)

Commodites	April - Febuary 1971-72	 1970-71
Jute Manufactures	2402.0	1701.0
Tea	1480.0	1390.0
Iron ore	943.5	1060.5
Engineering Goods	987.0	1038.0
Handicrafts	750.0	643.5
Cotton Piecegoods (Mill made)	601.0	619.0
Cashew Kernels	576.0	471.5
East India Tanned Hides and Skins	571.5	397.0
Pearls and Precious and Semi Precious Stones (worked or unworked)	474.5	387.0
Fish	374.0	283.5
Tobacco Manufactured	373.0	270.0
Oil Cakes	368.0	528.0
Iron and Steel (exclusive ferro-manganese and ferro Alloys)	344.0	730.0
Sugar	272.0	206.0
Coffee	215.0	224.0
Chrome leather tanned	183.0	235.5
Raw Cotton	152.5	130.0
Mica	145.0	146.0
Pepper	126.0	117.0
Cotton Yarn	125.5	196.0
Cottan Apparel	120.0	76.0
Coir and Coir Manufactures	117.0	122.0
Manganese ore	102.0	131.0
Cotton Piecegoods (Handlooms)	89.0	68.5
Wood, lumber and Cork Manufactures	80.0	71.0
Cardamom	75.0	100.0
Rubber Manufactures including Crude Rubber	74.5	65.0
Minenal fuels, lubricants and related materials	74.0	121.0
Fabrics and Artsilk and Synthetic Frbre and spun glass	70.0	47.0
Lac	59.0	45.0
Tobacco Manufactures	33.0	8.5
Finished leather	32.0	14.0
Raw wool	33.0	40.0
Plastic and Plastic Manufactures	27.0	46.0
Total including other items	**14275.40**	**13956.80**

PROGRESS IN INDIA'S CHEMICAL RESEARCH

The degree of development and diversification attained by India's chemical and allied industries is a reflection of the achievements in the field of chemical research. The role played by The National Chemical Laboratory, Poona in this context is indeed noteworthy. The contribution of the laboratory is particularly significant in natural and synthetic organic chemicals, inorganic and physical chemistry, polymer chemistry and elastomers and process development related to chemicals as also studies in chemical engineering and design of industrial plants. The activities of this premier research institution in the field in India have helped in enhancing agricultural productivity by providing important plant protection chemicals; preserving the health of the population through synthesizing a variety of drugs and pharmaceuticals; creating self-reliance and effecting import substitution in respect of strategic chemical raw materials required by the industry, defence and other sectors of the economy; and ensuring better utilization of wastes of agricultural, industrial, rural and urban (human and animal) origins.

In view othe damage to foodgrains and cash crops caused by insects and pests running into several millions of rupees per annum the laboratory has developed a technology for the production of nicotine sulphate, a fungicide which has been commercially implemented by a firm in Gujarat. This product has been extracted from tobacco waste. Two more processes have been developed for the production of simazine and atrazine to control the growth of weeds in the sugarcane, maize and jawar farms and in a few other commercial crops. Many of research programmes have also been formulated for the synthesis of a wide range of pesticides such as dalapon and TCA, phosphorous pesticides, juvenile hormones, a composite project on aldrin, dieldrin, chlordane, endosulfan, hoptachlor, endrin pentachloronitro benzene, propanil and nitrofen.

In the pharmaceutical industry, the research efforts of the NCL have been directed towards achieving the twin objectives of preparing new intermediates for drugs and pharmaceuticals and synthesizing new drugs, and extracting the active pharmacological principles of reputed Indian medicinal plants. The laboratory has developed processes for the production of a number of drugs and pharmaceuticals such as vitamin C, vitamin B_6, acriflavin, antidiabetic agents like dimethyl biguanide and phenethyl biguanide, calcium hypophosphite, phenacetin, theophylline and caffeine, colchicine carbimazole, sorbide nitrate, propoxyphene and Clofibrate. India has been exporting semi-refined opium and importing pure opium alkaloids at a considerably higher cost. NCL has developed a process for isolation of opium alkaloids such as morphine, codeine and theabine in a pure form and the process has been released. A factory for implementing this process is being established at Neemuch (M.P.) and its expected turnover will be around Rs. 10 million per annum. Work is also in drogress for synthesizing anti-fertility and abortive agents such as prostaglandins which are expected to play an important role in population control.

The most important raw material source for the chemical industry in the persent and future is the petroleum industry. It serves as a feeder to other industries like synthetic fibres, plastics, rubber, dyes, pharmaceuticals and agrochemicals.

In the petrochemicals field, the processes already developed at the NCL for the production of chloromethanes from waste methanes, chlorobenzenes, dimethylaniline and hexachloroethane have been released to industry for commercial implementation. The laboratory has also entered into a contract with the public sector petrochemical undertaking M/s. Indian Pharmaceuticals company Ltd., for developing processes on propylene oxide, acrylic acid and acrylates, vapour phase oxidation of olefins, etc. Work is also in progress for the development of technology for benzoic acid and terepthalic acid. The latter is a basic raw material for polyester fibres. Negotiations for the release of a process for ethylendiamine are in progress.

On the Polymers and elastomers front a notable contribution is the development of a process for nitrile rubber, the entire demand for which is being met by imports. The estimated demand for this product by 1978-79 is about 2500 tonnes valued at Rs. 250 million. The NCL has also developed a process for special adhesives based on nitrile rubber to meet defence requirements. A process for the production of sulphochlorinated polyethylene elastomers which is used for chemical resistant linings, hot conveyer belts and flexible steam pipes has been developed on a laboratory

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scale and steps are under way for scaling up this product. Coir pith is a waste product obtained in the coir industry. A useful process has been developed to prepare rubberised automobile gaskets based on coir pith to substitute imported cork granules. Polyurethane coatings, compositions for rubber, leather, nylon and metal substrates which possess improved water-repellant and abrasion properties have been developed and being released to industry.

Let us examine the progress in dyes, intermediates and industrial chemicals. The chemical industry depends to a large extent on imports of key organic intermediates. As a measure of import substitution, a number of research projects were initiated for the development of these intermediates. NCL has successfully concluded work on 30 intermediates used in the dyestuff and pharmaceutical industries. Production capacities for several of these processes have been established and a few are under various stages of commercial implementation. Some examples are acetanilide (1600 TPA valued at Rs. 12 million), phthalates (2600 TPA valued at Rs. 15 milion) aniline, rubber blowing and rubber reclaiming agents, p-nitrophenol, sorbitol, monochloroacetic acid, phenylacetic acid, butyl titanate, catechol and tert butylcatechol, morpholine etc. Processes have also been developed for the production of chlorinated copper phthalocyanine, quinacridone pigments and disperse dyes.

India has plentiful natural sources for extracting and synthesizing perfumery chemicals which have a wide export market. NCL has developed a number of processes, of which 7 are already in production. Beta ionone which is obtained from lemon grass oil is used in perfumery and it is also an intermediate for the production of vitamin A. Beta-ionone is already in production and the product has also secured an export market.

The modern electronic instruments and the recent trends in miniaturization have necessitated the development of solid state devices, which are finding increasing applications in transport, communications, television, transformers, inductors and recording heads. The solid state group at the NCL has developed a number of solid state devices, such as photocells, thermistors, ferrites, flexible magnets and radiosonde thermistors. Many of these processes have already been commercially implemented.

Modern scientific research requires a variety of sophisticated instruments and analytical apparatus and the NCL has successfully developed a few instruments viz. Vapour Phase Chromatograph, Strip Chart Recorder, D. C. Polarographic unit, Electron Diffration camera and Direct reading spectrophotometer. Work is also in progress for the development of tin oxide potentiometer, electron paramagnetic resonance spectrometer and infrared spectrometer.

India possesses rich forest resources which have not been put to any systematic uses until recently. The forest resources provide an almost perennial source of cellulosic raw materials which can be converted into useful products. The Laboratory in Poona has developed two processes for the production of dissolving grade pulp which finds a variety of uses in making rayon yarn, tyre cord fibres, cellulose acetate powders, etc. Hard and soft woods grown in the various parts of the country were examined to assess their suitability for making dissolving grade pulp. Based on the NCL process for the production of dissolving pulp a multipurpose pulping unit is likely to be set up in due course.

NCL has also developed a number of processes for the utilization of agricultural wastes such as sisal wax from sisal fibre, oxalic acid from ain bark, extraction of costus root oil from Kuth, alternative uses for tamarind seed kernel and better utilizaion of Indian medicinal plants.

In addition to the technologies developed to meet the needs of the different segments of the Indian chemical industry, NCL has also developed several other processes for special applications. Examples are: development of antipriming composition for Indian railways, fatty alcohols, condensates for controlling water evaporation in the arid regions of the country, synthetic gem stones, water dispersible DDT, chromatographic adsorbents, rigid and micro filters, hot and cold sachets, foundry chemicals, molecular sieves etc. A special unit is also functioning at the NCL for synthesizing over 300 organic and inorganic fine chemicals used for chemical research and teaching. ☐

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EXPORT PROGRESS IN ELECTRICAL MACHINERY AND APPARATUS

The year 1971-72 witnessed sizeable improvement in India's export trade of electrical machinery, apparatus and appliances. The first 11 months of 1971-72 registered an export value of about Rs. 179 million, as compared to Rs. 144.8 million in the same period of 1970-71. In 1971-72, electrical power machinery and switchgears fetched Rs. 46 million, equipment for distributing electricity Rs. 50 million, telecommunication apparatus Rs. 47 million, domestic electric equipment Rs. 16.8 million and other electrical machinery and apparatus Rs. 39 million.

In the group pertaining to equipment for distributing electricity, insulated wire cables earned as much as Rs. 47.58 million while electrical insulating equipment netted Rs. 2.4 million. The wire/cable varieties were enamelled copper winding wire, insulated cable winding strip, plastic insulated wire, lead alloy sheathed cables, paper insulated cables, plastic insulated cables and flexes, rubber insulated cables and flexes, coaxial cables, etc.

Recently, the Soviet Union has placed an order on an Indian firm to export 250 km. of H.T. paper insulated aluminium conductor cables. The Indian party who are to export the cables to that country are M/s. Siemens India Ltd., 134-A, Dr. Annie Besant Road, Worli, Bombay-18.

The order was placed by U.S.S.R. as a sequel to the visit of a delegation from that country to India. The delegation visited the plant of Cable Corporation of India where the Siemens Cables are manufactured. The Delegation evinced particular satisfaction in the severe testing and thorough quality control exercised at the factory.

Out of the 250 km. length of cables to be exported, half of it has already been shipped and the balance is to be completed by October, 1972.

Earlier, the Bombay firm received orders from Kuwait for the export of special heat resistance cables and from Iraq Port Administration for L.T. paper cables. In the past, they exported cables to Australia, Hong Kong, Iran, Singapore and Kuwait.

The Bombay firm have also succeeded in securing electrical installation jobs as a joint venture project in

Malaysia and a turn-key project in Iraq, both being executed by Indian parties. The Indo-Malaysian Textile Project set up with the assistance of Birla Companies in India is a composite textile mill for man-made fibres. The mill is to have modern and sophisticated textile machinery, the bulk of which is to come either from Japan or from leading Indian manufacturers. The design, supply and installation of the electrical equipment were entrusted to M/s. Siemens India on a turn-key basis. The equipment includes various types of switch boards and distribution boards that are specially designed and manufactured by the Bombay firm.

The cement project coming up in Kufa (Iraq) is also with Indian collaboration. The wet-process cement plant at a capacity of 700 tonnes-per-day is being set up on a turn-key basis by M/s. Associated Cement Companies Ltd. Cement House, 121 Queen Road, Fort Bombay-1, (except for the civil engineering construction). The project valued at Rs. 37 million is noteworthy as the contract was won by the Indian party in the face of international competition. M/s. Siemens India have been entrusted with complete electrification of the cement plant. The job includes the supply of H.T. and L.T switchgears, transformers, instruments and control panels, H.T. and L.T. cables as well as erection, commissioning and engineering for the whole scheme.

EXPORT OF PAPER PRODUCTS

India's export trade in paper products including books and other printed materials totalled Rs. 29.27 million in 1971-72 as against Rs. 18.15 million in 1970-71. A wide range of paper materials is active in export trade including vulcanised fibre sheets, carbon paper, stamp pads, ribbons, paper rolls, ice-cream cups, drinking straws, playing cards, art books, calendars, paper cones and tubes, duplicating stencils, paper laminated canvas bags, greeting cards, teleprinter rolls, account and religious books, exercise books, envelopes, pictures, continuous business forms, printed labels, poster paper, paper reels, packaging and paper containers and printed paper leaves, stationery, corrugated boxes, cardboard boxes for jewellery, laminated paper-lined hessian bags, paper charts and models, wax paper wrapppers and display bags, stamp pads, books, journals, publications and other printed materials.

M/s. Green Cone and Company Ltd., Bombay, have registered progress in the export of paper cones and paper for the manufacture of cones. The countries to which they have recently exported include Australia, Sri Lanka, Ethiopia, and Mauritius. They have exported their products to the tune of Rs. 1 million during 1971-72. Another firm engaged in the export of paper cones and tubes are M/s. Paper Cones and Bobbin Factory in the Gujarat State whose supplies to East Africa amounted to Rs. 108,000 during the first three quarters of 1971-72.

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M/s. Bharat (Sales) Ltd., New Delhi, have gained foothold in the export markets of Malaysia, Sri Lanka, Kenya, Uganda and Afghanistan for their products including carbon paper, stamp pad, ribbons and paper rolls. Their exports during 1971-72 were of the order of Rs. 1.49 million. M/s. Kores (India) Ltd., Bombay-18, are another Indian party that has supplied substantial quantities of carbon paper, ribbons, stamp pads and duplicating stencils. Their exports were of the range of Rs. 1.94 million in the first 11 months of 1971-72. Importers of their products include Uganda, South Vietnam, U. K. and Thailand.

Among the exporters of books and other printed materials, M/s. U.B.S. Publishing and Distributing Pvt. Ltd., Delhi-6, have secured nearly Rs. 1 million during 1971-72 through their supply of books to U. K., U.S.A., Canada, France and Denmark.

INDIAN KNOW-HOW FOR SUDAN

M/s. Chemicals and Fibres of India (CAFI), 'Crescent House' 19, Wittet Road, Ballard Estate, Fort, Bombay-1, are assisting a Sudanese party in setting up a project for the manufacture of polyester fibre. They will supply technical know-how and help in procuring plant and equipment for the Rs. 15 million project. About 90 per cent of the equipment is to be supplied by India on a turn-key basis. The Bombay firm is also to supply "Terene" blended yarn initially worth about Rs. 7.5 million a year for the project. Their exports of yarn may eventually exceed to Rs. 10 milllon per year. The Sudanese plant is scheduled to commence production in the first quarter of 1973.

The Sudanese project is also to by from India dyes, chemicals and other accessories worth annually about Rs. 4 million to be supplied by the CAFI Group. The Indian firm is at present training a few Sudanese technicians. It is also to depute a few Indian technicians for the start-up of the plant.

CUTLERY TO WORLD MARKETS

International demand for India-made cutlery has been improving in recent months. In the first eleven months of 1971-72 (April 1971 - February 1972), the export value of cutlery was Rs. 4.23 million as against Rs. 3.98 million in the same period of 1970-71. Among the varieties of cutlery exported are pocket and other knives, safety razor blades, scissors and their blades, spoons and similar tableware, handles of basemetal cutlery etc.

The export efforts of M/s. Kischco Manufacturing Company, Bombay is noteworthy in promoting Indian exports of cutlery. With export orders worth Rs. 15 million on hand, the bulk of which is in free foreign exchange, the firm is soon putting on stream its second cutlery unit and also planning the third sophisticated unit by 1974. The firm has started exports in the line in 1965 in competition with the products of countries like Japan and Germany. In the following years the company's exports picked up sizeably. The firm's current production is 31,000 pieces per day in three shifts as against 4,000 pieces a day in 1964. It is expected that when the second unit is commissioned, the production will be 70,000 pieces a day. When the third unit is commissioned the output will cross 150,000 pieces a day. Among the importers of the firm's cutlery are the U.S.A., Canada, West Germany, Czechoslovakia, besides the U.K.

According to the firm, Indian cutlery has a great potential in international markets since it is labour intensive. With the cost of labour increasing at a rapid rate in almost all the developed countries - $ 3.36 per hour per worker in the United States, $ 1.6 in West Germany and 87 Cents in Japan against India's 13 cents, India will be able to produce the most inexpensive cutlery in the world.

INDIAN CALCULATING MACHINES FOR EXPORT

Calculating and accounting machines were exported by India to the tune of Rs. 18.85 million during the first eleven months of 1971-72 (April 1971 - February 1972). The variety exported includes manually operated calculating machines, punches, verifiers, collators, and calculating machines.

France is the most important importer of punches at a value of Rs. 3.4 million out of a total export earning of the product at Rs. 6.4 million. U.K. is another market for these machines, particularly punches, verifiers and tabulators.

Recently, an Indian firm M/s. Facit Asia, have succeeded in exporting 500 calculators. The firm produced over 5350 calculators during 1971-72, against 5805 in the preceding year. Their output of adding machines was higher at 3,605 against 3030 numbers.

A calculating machine, wholely designed by Indian technicians, was recently produced by the Delhi Cloth Mills Group, Delhi recently. It is a 2.8 kg. desk calculator, capable of addition, subtraction, multiplication, division, squaring, square rooting, sequential calculations and negative number entries. The import content of the calculator has been estimated at about 10 per cent of the total cost.

The firm had earlier fabricated programmable calculators capable of handling many intricate and complex calculations, possessing applicability in a wide range of industries such as engineering, banking and agriculture. This calculator has a special capability of evaluating logarithms, square root, expotentials and percentage operations. The new electronic wing of the Delhi Cloth Mills has plans to manufanture calculators with more memories, programmable and scientific calculators, accounting and invoicing machines, cash registers and printer calculators.

BEARINGS AND BUSHINGS ON EXPORT STREAM

Indian exports of ball roller, needle roller bearings and parts are steadily picking up in the overseas markets. During the year 1970-71 the exports fetched Rs. 1.67 million. The important destinations were Argentina, Italy, Kenya, Arab Republic of Egypt, France, Greece, etc.

In the first 11 months of 1971-72 (April 1971 - February 1972) the export earnings were of the order of Rs. 1.15 million. The exports durings this period were mainly directed to Australia, Sri Lanka, Nepal, Italy, U.S.A., Ireland etc.

M/s. Mahindra Sintered products, Bombay, one of the prominent exporters in the line have been able to secure a contract for supply of sintered bearings and bushings valued at Rs. 110,000 from the Government of Iran. The export orders are to be executed between September to November in 1972.

The Bombay firm which is a concern under M/s. Mahindra and Mahindra, Bombay Group, have exported to the tune of Rs. 2.2 million during the last five years. Their exports during these years were mainly directed to Middle East and far Eastern countries. Gateway Building, Appolo Bunder Bombay-1.

EXPORT PERFORMANCE AND POTENTIAL

EXPORT POTENTIAL OF ENGINEERING PROJECTS

While India's export trade of engineering products has improved notably in recent years, the share of engineering project exports has increased too. Indian exporters have been successfully competing in the world market and securing global tenders. During the post devaluation period the total value of big contracts and turnkey projects so secured amounted to more than Rs. 2230 million. Quite a few of the projects have been since executed.

Supplies under these contracts are effected to countries in South East Asia, Africa, East Europe as also to advanced countries like U.S.A. and West Germany. The high value contracts mainly cover supplies of power cables, transmission line towers, railway wagons, rail and railway accessories, jeeps, HR boilers and textile machinery. The turnkey projects secured are for cement plants, water pumping plants, power stations etc.

Market surveys of various countries have revealed that India's engineering goods enjoy good reputation. The markets of developing countries have launched planned programmes of development and these have opened up opportunities for project exports from India. Similarly advanced countries have come to realise that India can supply goods that are labour intensive or are in the nature of sub-assemblies.

The engineering turnkey projects that India is in a position to undertake include industrial machinery projects like textile factories, cement plants, crushing and screening plants, sugar factories, solvent extraction and hydrogenation, factories for production of engineering goods and equipment like machine tools, and porcelain insulation factories. India can also supply public utility projects like electrification project for the distribution of power in a city or rural area, transmission line projects, water treatment plants, sewage treatment and disposal plants, etc. Depending on job specifications of a project, the Indian industry can undertake projects where complete specifications and schedules are drawn up by the consultants and customers. India also can organise high value projects like petroleum refineries, large electrification projects and steel plants or medium value projects such as industrial machinery.

To be able to specialise in large ventures and turnkey projects abroad in specified industrial areas, the Government of India have set-up an autonomous organisation - Projects and Equipment Corporation - as a subsidiary of the State Trading Corporation of India. The Corporation concentrates in areas like railway systems including rolling stock, locomotives, track and signalling equipment etc; public utilities, complete industrial plants and projects, castings and forgings, ancillary equipment for big international manufacturing concerns such as in the automobile industry. The Corporation also assists the Indian industry in tendering and negotiating, quality control and identification of marketing opportunities abroad.

Notwithstanding certain problems faced by the Indian exporters in executing turnkey projects abroad, the project exports of the industry as on September 1, 1972 approximated Rs. 1520 million. They relate to large contracts mainly in the sectors of industrial plants and machinery, structural fabrication, power station equipment and railway and rolling stock equipment. Completion of these contracts will no doubt lead India to emerge as a prominent exporter to industrial plants and other sophisticated engineering equipment.

GROUNDNUT EXTRACTIONS AND EXPORT TRADE

India exports sizeable quantities of ground nut extractions. In 1971, the export quantum at 0.86 million tonnes was higher than the earlier record of 0.84 million tonnes export in 1964, it is learnt from the Groundnut Extraction Export Development Association Bombay, which is the canalising agency for th exports since 1969. Since canalisation, exports by th Association have recorded a steady uptrend - 0.6 million tonnes in 1969, 0.76 million tonnes in 1970 an 0.86 million tonnes in the following year.

An achievement of the Association was that i became the chief supplier of extractions to Japan displacing traditional suppliers like Brazil, China and the U.S.A. Against exports of 55,490 tonnes to Japan in 1969, India exported 1,34,755 tonnes to that country in 1971. Regionwise, nearly 70 per cent of the exports are directed to East European countries. Poland bought nearly 1,45,750 tonnes, Hungary 1,15,950 tonnes, GDR 1,05,985 tonnes and U.S.S.R. 75,120 tonnes. Among the free currency areas, exports to U.K. which was a traditional market for Indian groundnut extractions, have been on decline. Against 1,72,000 tonnes in 1969 exports during 1970 and 1971 were only 1,34,000 tonnes and 87,600 tonnes respectively. The decline was mainly due to the unhelpful attitude of the Karmoham Conference, according to the Association.

In terms of value, groundnut in shell and groundnut kernels (HPS) earned Rs. 55.75 million in the first eleven months of 1971-72 (April 71-February 72). In the same period, exports of hydrogenated groundnut oil netted Rs. 0.73 million and groundnut oil cake and meal (solvent extracted) Rs. 312.39 million. Obviously, among groundnut extractions the most important export that of solvent extracted groundnut oil cake. The major importer during the period was Japan, at an import value of Rs. 60 million followed by Hungary (Rs. 49.16 million), Poland (Rs. 43.62 million), German Democratic Republic (Rs. 41.8 million), U.K. (Rs. 35.86 million), U.S.S.R. (Rs. 23.85 million) Czechoslovakia (Rs. 15.73 million) and Yugoslavia (Rs. 11.63 million).

M.M.T.C's EXPORT EFFORT

From the level of Rs. 680 million in 1964-65 to over Rs. 2680 million in 1971-72, the trade turnover of Minerals and Metals Trading Corporation has improved sizeably. The turnover in 1972-73 is likely to exceed Rs. 3500 million - about Rs. 1220 million in exports and Rs. 2440 million in imports.

Iron ore constitutes the most important item of export handled by the Corporation accounting for Rs. 720 million against the Corporation's total export trade of Rs. 870 million in 1971-72. In order to minimise concentration on limited markets for the ore, the Corporation has been striving hard to diversify the destinational pattern. For the first time, they succeeded in selling 120,000 tonnes of iron ore fines to a new market in South East Asia in 1971. A long-term agreement has been concluded in June 1972, for supply of 1.16 million tonnes of Goan/Redi fines covering the period January 1973 to May 1978. South Korea is another market where the Corporation made a good headway for the export of iron ore. A contract was secured from that country in 1971 envisaging supply of a cumulative quantity of 1.14 million tonnes of iron ore over a period of five years commencing from April 1973.

Owing to the imbalances that developed in the world demand and supply, exports of manganese ore have been under great pressure. New sources of supply particularly Australia have emerged and captive sources mainly in Brazil and Gabon have also developed. Added to this was the freight increases following the closure of Suez Canal. With these factors in play, Indian exports declined from 1.5 million tonnes in 1964-65 to 1.03 million tonnes in 1967-68. Despite this adverse trend MMTC tried to diversify markets abroad and succeeded in exporting to Rumania, Democratic Peoples's Republic of Korea, Arab Republic of Egypt and more recently Bulgaria and South Korea.

The bulk of Indian exports of manganese ore constituted higher grades (+44 per cent) in 1950s and early 1960s. But in view of the internal requirements of the higher grades for the production of ferro-manganese, a shift in Indian exports became inevitable and a major portion now constitutes of grades less then 40 per cent of ore content. However, more than half of world trade in manganese ore comprises in metallurgical grades of ore and therefore the Corporation has been striving to find buyers abroad for such types of higher grades which have little use internally. A beginning has been made by finding an outlet for high phosphorous content ores in the U.S.A. and Canadian markets.

With the emergence of Bangla Desh, the traditional market for Indian coal has been revived. The export to that country is expected to be of the order of Rs. 40 million during 1972-73. The export of processed mica was canalised through MMTC, effective from January 1972. The export trade of mica during 1972-73 is likely to be about Rs. 120 million.

The export of minor ores is not canalised but the Corporation was entrusted with the job of developing their exports. The Corporation's export efforts for the the non-canalised minor ores, have succeeded in making a beginning with the export of 100 tonnes of Vermiculite to Australia recently.

On the import side, the Corporation is officially the bulk importer of non-ferrous metals. They have been able to establish direct contacts with the producers abroad and already concluded two long-term contracts with Zambia and Peru for import of 18,000 tonnes annually of copper from each source. The Corporation has plans to enter into long term arrangements for procurement of other metals like lead and zinc, directly with the foreign producers. Import of fertilisers is a recent addition to the import list of the Corporation. They recently concluded contracts with Rumania and Bulgaria for supply of nitrogenous fertilisers. The contract concluded with Rumania is for supply of 80,000 tonnes of fertilizer like CAN and urea during 1972 and 75,000 tonnes during January to June 1973. The contract with Bulgaria is for 30,000 tonnes of nitrogenous fertilisers for supply during the current year. Along with the contract now concluded with Rumania, the total shipment during 1972 would workout to about 238,000 tonnes of Nitrogenous fertilizers to Rumania which is thus the largest single buyer of nitrogenous fertilisers during 1972.

EXPORT PERFORMANCE OF HANDLOOMS AND HANDICRAFTS

Simultaneously with the achievement being made on the export front of non-traditional manufactured products such as engineering goods, chemicals and plastics, the Indian exporter continues to harness the traditional sectors like handlooms and handicrafts. The contribution of these two industries, which were described as the two lungs of the Indian economy by the Father of the Nation, Mahatma Gandhi, has gradually improved year after year.

The cotton handloom textiles, for instance, earned foreign exchange of Rs. 133 million in 1970-71. Items like 'Bleeding Madras', Real Madras Handkerchief', dhotis, shirtings, sarees, bedsheets, blankets, towels, napkins, pillow covers, table cloth etc. have come to stay in the export trade. Handicrafts including carpets and floor coverings, jewellery, art-metals, wood carvings, toys, mats and basketry were exported to the tune of Rs. 803 million in 1970-71.

The Handloom and Handicrafts Corporation, Lok Kalyan Bhavan, Rouse Avenue, New Delhi organises India's export effort in these lines. The Corporation has directly exported worth Rs. 41.10 million in 1971-72 which was a 17 per cent increase over the previous year's record of Rs. 31.10 million. In addition, the Corporation is responsible for arousing export consciousness in the country.

The Corporation has set up a new Division recently in order to develop the export of Men's-Wear. They have entered into a collaboration arrangement with M/s. Peter Golden Clothing Company of U.K. and succeeded in exporting to West European market also. Similar sales arrangements with M/s. Roger Kukawka in France and M/s. Bensons and Partners in the United States are expected to yield substantial business in the financial year of 1972-73. The Corporation also collaborates with the House of Cardin in Parls, Madame Peral in France, Madame Hanae More in Tokyo, Carol Horn in New York etc. for high fashion accessories.

In 1971-72 there was a notable shift in the export composition of the Corporation. Sizeable export business was effected for handknotted carpets from West Germany. HHEC also spearheaded the move for production and export of Indo-Hamadan quality of carpets in Mirzapur/Bhadohi areas. Sales of handknotted carpets increased from Rs. 1.9 million in 1970-71 to Rs. 12.2 million in 1971-72. The country's exports of carpets to West Germany went up from Rs. 6.7 million in 1970 to Rs. 37.5 million in 1971.

The Corporation is now engaged in the manufacture of a number of prototypes of superior qualities and new designs in Mirzapur/Bhadohi areas and Srinagar.

EGYPT'S OFFER TO TRANSHIP INDIAN GOODS

With an object of overcoming delays in the movement of trade between the countries situated on the East of Suez Canal on the one side and the European and Western Hemisphere on the other because of the closure of the Suez Canal, the Egyptian Government have established a land bridge between Suez and Alexandria. Under the arrangement, cargoes landed at one of these two ports are carried by lorries to the other port for shipment to the final destinations. It is learnt that sufficient number of heavy weight lorries are available for carrying about 2,500 tonnes every day. The land-bridge is operated by the Canal Shipping Agencies Company and the Egyptian Government provides war risk cover for the cargo moving on this land route. The land-bridge is already being used by the Government of Tanzania and other East African countries for movement of vegetables and other goods to French and Italian ports.

The suggestion that India should also avail of the Egyptian offer to tranship goods across Seuz Caual is, no doubt, welcome to India provided it is definitely cost saving to shippers. A delegation from India recently visited Egypt to assess the feasibility of India also availing the facility. To examine the proposal in depth, a representative of the Indian lines group now serving India-UK/ Continent is to make on the spot investigations.

Indian export of cargo would take half the time in getting to Europe than by going ronnd the Cape of Good Hope. Shipping charges would be 10 - 15% less expensive, according to the Chairman of Canal Shipping Agency in Egypt. Indian exports to Tanzania, Algeria and Libya would be trucked directly from Suez Port and the road transport between Suez and Alexandria will be done by an Egyptian State owned trucking comany.

The Seuz Canal was closed since the Arab-Israeli conflict in 1967.

EXPORT BAN TO SUDAN LIFTED

Pursuant to Indo-Sudanese mid-term Trade Review Talks held recently, the temporary halt on Indian exports to Sudan imposed by the Indian

Government in mid July has been lifted. The ban was imposed in view of certain difficulties that cropped up in the working of the current Trade Plan between the two countries.

Sudan is India's leading trading partner in the developing world with over Rs. 1000 million of annual trade between the two countries. At the recent talks it was decided that during the remaining period of the current trade plan (which is valid up to December 1971) India would be exporting to Sudan a variety of goods worth Rs. 170 million. These exports will consist of jute manufactures, tea, spare parts, chemicals, machines and some essential oils. In return, India will be importing additional 100,000 bales of Sudanese long staple cotton.

EXPORT DEVELOPMENT AUTHORITY FOR MARINE PRODUCTS

The export supplies of marine products from India during 1970-71 were of the order of 35,883 tonnes amounting to Rs. 350.7 million. This represented a 13.21 per cent growth in terms of quantity and about 4.83 per cent in terms of value over the 1969-70 exports at 31,700 tonnes valued at Rs. 334.6 million. During the first eleven months of 1971-72 the exports of marine products reached a level of Rs. 367.84 million, against Rs. 276.50 million secured in the same period of preceding year.

A statutory Board styled the Marine Products Export Development Authority has been set up recently for further development of the marine products industry with special reference to exports. The Authority with its headquarters at World Trade Centre, M. G. Road, Ernakulam, South Cohin-16, will have its members, representative each from the Government of India Ministries dealing with Agriculture, Finance, Foreign Trade, Industry and Shipping & Transport. In addition, the Authority will have a suitable number of members, not exceeding twenty, to represent other interests concerned with marine products development.

The main functions of the Authority are to develop and regulate off-shore and deep-sea fishing and undertake measures for the conservation and management of off-shore and deep sea fisheries; register fishing vessels, processing plants, storage premises for marine products and conveyances used for the transport of marine products; fix standards and specifications for marine products for purposes of export; render financial or other assistance to owners of fishing vessels engaged in off-shore and deep sea fishing; carry out inspection of marine products in any fishing vessels, processing plants, storage premises, conveyance to other places where such products are kept or handled, for the purpose of ensuring the quality of such products; regulate the export of marine products, and improve the marketing of marine products outside India. In fact the Authority will take over all the functions of the Marine Products Export Promotion Council, Cochin with all its assets and liabilities.

EXPORT EFFORT IN POLYSTYRENE

With the planned programmes for petrochemical expansion underway, the Indian economy is gradually heading for a production surplus for export in selected areas.

M/s. Polychem, Jamshedji Tata Road, Churchgate Reclamation, Bombay-20, for instance, have taken upon an active programme of polystyrene production and exports. From a small beginning, the company's exports of the product increased to over Rs. 1.6 million in 1970-71 besides supplying about 118 tonnes of the product to the plastics processing industry on international prices.

The firm has a well equipped research and development laboratory. They undertook to develop knowhow for the manufacture of divinylbenzene (DVB) which had hitherto been imported. The product made by the firm conforms to international specifications and has been found satisfactory by the consuming industries particularly the manufacturers of ion exchange resins for water treatment. The indigenous production of 150 tonnes per year of DVB by the firm, has a minimum foreign exchange saving of Rs. 1.5 million to Rs. 2 million.

THREE-WHEELERS FOR BANGLA DESH

Against international competition, an Indian firm has recently secured an export order from Bangla Desh for the supply of 1500 three-wheeler scooters at a value of £ 33,700 (around Rs. 6.02 million). The party that received the order are M/s. Bajaj Auto, Chinchwad, Poona.

Eight main vehicle manufacturers are engaged in India in the production of vehicles, trucks, buses, jeeps and diesel engines for commercial purposes-ranging from 7.35 tonnes payload to 16 tonnes payload. In the line of two wheelers like scooters and motorcycles, eight companies are engaged in the manufacture of three-wheeler auto rickshaws also.

In 1971, the production of scooters was of the order of 67,215 numbers showing a 15 per cent improvement over the output in the previous year. A big rise was noticeable in the output of three-wheeler auto-rickshaws at 6145 numbers as against 2230 numbers produced in the year 1970.

The automobile industry in India has exported worth Rs. 110 million in 1971 while the automobile ancillary industry earned foreign exchange of Rs. 41.4 million.

There are large plans for the expansion of capacity for scooters and three-wheelers. In fact twentyfour letters of intent were issued for manufacture of scooters with a total capacity of about 553,000 units and nine letters of intent for three-wheelers for an output of 147,000 numbers per annum.

CONFORMITY OF EXPORTED GOODS WITH SAMPLES

To assure the foreign buyers of the quality of goods exported from India, most of the exportable commodities have been brought under the purview of the Export (Quality Control & Pre-shipment Inspection) Act which came into force in January, 1964. Under this Act, inspection of the notified commodities is carried out against the standards specified or against the samples approved by the buyers. The number of complaints received from different countries have come down considerably. For instance in 1970 there were 12 complaints on the basis that the supplies did not conform to samples. Another 13 complaints were received on the basis that the supplies were not in confirmity with the specifications. In 1971, the complaints pertaining to samples came down to 9 and those regarding non-confirmity to specifications were 11.

Every effort is made by the Government to persuade the exporting firms to arrive at some settlement by way of compensating the loss sustained by the foreign buyer. Most of the exporters against whom complaints were received have settled them.

INDIA'S PARTICIPATION IN BERLIN FAIR

Ten Indian firms that participated in the Tenth Overseas Import Fair "Partners for Progress" held in Berlin in late August this year have created an impact on the visitors and succeeded in projecting an image of industrialising India. In addition to the traditional products, manufactured products such as dry cell batteries, flash lights, stereo phonograph equipment and speakers were on display in the Indian pavillion. Other new products that were exhibited from India were mango juices and sandal wood soap. A specific item which met with a particularly good response was the range of canned shrimps.

Indian textiles were ordered in large numbers especially by the Department Stores. Orders were also placed for Christmas decorations, traditional handicraft products and carpets. A new item in the textile range was the colourful washable cotton material suitable for a wide range of uses such as for beach bags and mats.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

RAJASTHAN ATOMIC POWER PROJECT

The first unit of the Rajasthan Atomic Power Project (RAPP) has become "critical." It is the first natural uranium heavy water moderated-cooled nuclear power station in India, situated near Kota (Rajasthan). It has a net generating capacity of 400 MWe, consisting of two units of 200 MWe each.

The first Unit of the Project which became "critical" in August 1972, will be declared operational for commercial production after a number of tests and experiments at various power levels are over. Unit II, of which, all major civil works including prestressed concrete domes have been completed, and installation of nuclear and conventional components is in progress, will become "critical" in March 1975.

In active pursuance of the policy of maximum indigenisation, the construction and project management was taken over as a complete Indian responsibility with design and engineering consultancy offered by Canadian agencies. As regards fuel, only 50 per cent of the first charge of BAPP I has been imported from Canada. The balance 50% as well as continuing fuel requirements will be met entirely from Indian sources. The fuel elements will be fabricated at Hyderabad using natural uranium which would be extracted and processed from Uranium Concentates manufactured by the Uranium Corporation of India.

All nuclear equipment and their auxiliaries are housed in the reactor building which is cylindrical concrete structure topped by a hemispherical prestressed concrete dome, which is 42 metres in diameter and the biggest of its type in the eastern hemisphere. The entire building has been constructed in such a way as can be completely sealed to prevent release of radio activity in the remote event of an unforeseen accident.

A special feature of this reactor is that it can operate at full load and pressure when the fuel is being changed. Though the machines for the first Unit have been purchased in Canada, a fair proportion of the control equipment was made in India by Electronics Corporation, Hyderabad. The entire fuel handling equipment for the second unit will be made in India.

The electrical power is produced by two turbogenerators one coupled to each reactor. Each turbogenerator is capable of generating 220,000 killowatts of electricity and is the biggest of its kind installed in the country.

The Rajasthan Station will form a part of the proposed northern grid so that its power is available to the States located in this grid. The first Indian nuclear power station is the Tarapur Station which supplies electricity to the States of Maharashtra and Gujarat.

INDIAN TELEPRINTERS

AN OUTLOOK

The telecommunications industry of India is making rapid headway in the field of exports in the recent years. The growing demand for India's telephones, telegraphs equipment and teleprinter at domestic as well as at overseas level has enabled the industry to enter into mass scale production of these sophisticated items, particularly in the post independent period. Especially the demand for these items is on increasing trend from the developing countries of Asia and Middle East.

In the allied sphere of telecommunications, manufacture of teleprinters has been established in India a few years ago. The teleprinter is a complicated and delicate machine and is made up of over 2000 numbers of specific precision parts and 800 numbers of standard parts like screws, nuts, washers and circles.

M/s. Hindustan Teleprinters Limited, G. S. T. Road, Guindy, Madras-22, is the sole large scale manufacturing unit in the country. The firm's present annual production capacity is placed at 8500 teleprinters per year. During 1970-71 the firm turned out 5500 teleprinters. The range of products of the firm includes tape teleprinters, page teleprinters, printing reperforators, independent automatic tape transmitters, tape transmitter attachments, repeforator attachments, signalling power supply units of various types, switch board etc. Apart from manufacturing standard versions of teleprinters, tailor made versions to suit the specific requirements of customers are also manufactured and exported. In the first four months of 1972-73 (April-July 1972) the Hindustan Teleprinters, Ltd., Madras have manufactured 2082 units of main machines and 1200 units by way of spares (of the value of Rs. 6 million). The production of main machines in the first four months would be slightly more than the proportionate target for the year.

Although a new entrant in the export field, they have secured orders worth Rs. 4.8 million from countries like Kuwait, Iran, Bhutan, Sri Lanka, Yemen and Nepal in the preceding years. The important feature of the contracts secured from Iran and Kuwait was that these were secured against stiff global competition. In 1968-69 the unit netted orders worth Rs. 2.8 million. During 1970-71 the exports rose as much as Rs. 5.3 million. The firm originally started manufacturing teleprinters with English key board but later on added to its range the teleprinters with Deonagri script key board and Arabic key board owing to increasing domestic demand for key boord in Deonagri script and demand from Arab countries for Arab script. These most sophisticated products of the firm have great export potential in the overseas market particularly in the developing countries of the world.

The firm have also achieved self-sufficiency in the manufacture of components and various parts required for a variety of teleprinters produced by the firm. In addition to this, the firm has further achieved substantial progress in substituting the imported components by the indigenous ones.

Some new products developed recently by the firm includes Arabic teleprinters, line units for connecting the teleprinters to manual or automatic teleprinter switch boards with facility to work either on single or double current basis, intelex switch boards for international telex equipment at Bombry, in surface unit for conversion of digital codes parallel output signals to a sequential teleprinter signals, teleprinter commutator for interconnection of voice frequency telegraph channels to teleprinters in medium and large teleprinter installation, high speed teleprinters, tape readers and tape punches. The Research and Development Organisation of the Madras firm is engaged in the manufacture of electric typewriters, electronic teleprinters, power cubicles etc. The company has already developed the prototype of electric typewriters, the regular manufacture of which is expected to commence within a few months.

DEVELOPMENT IN COIR CARPET INDUSTRY

The Central Coir Research Institute of the Coir Board, Cochin has recently developed a new coir carept which is a soft yarn carpt. Coir yarn when treated at a particular strength acquires the softness of wool. Such yarns are used for the manufacture of the new variety of carpets.

In the first eleven months of 1971-72 India exported coir mats and mattings at Rs. 49 million, coir yarn worth Rs. 73.18 million, coir cardage and rope Rs. 0.3 million, coir carpets and floor rugs Rs. 12.50 million.

In 1970-71 coir exports from India amounted to Rs. 138.7 million. In that year coir mats contributed over 23 per cent of the total export in the line, while yarn 64 per cent, coir mattings and rugs carpets 10.6 per cent, rest being coir fibre, coir yarn, coir rope, and rubberised coir goods. Coir exports from India are directed to more than 90 countries in the different regions of the world. The West and the East European countries absorbed 38 per cent each in the year, while Americas absorbed 13 per cent, West Asian countries 4 per cent, East Asian markets 6 per cent, and African countries 1 per cent.

India's production of coir and coir goods is of the order of about 160,000 tonnes. It accounts for more than 55 per cent of the total world production of coir (nearly 290 million tonnes).

DEVELOPMENT OF COASTAL SHIPPING

Against targets set for the Fourth Five Year Plan ending 1973-74, India is to cater to 40 per cent of the country's overseas trade. Indian ships are presently carrying only 20 per cent of the overseas cargo. In an effort to develop indigenous designs of ships, a Marine Design and Research Centre is proposed to be set up in the country.

Arrangements have been finalished to obtain ten dry cargo liners from Rumania, three tankers from Russia and two tankers from Yugoslavia which would help promote the coastal movement of cargo and oil during the Fifth Plan period. As the bulk of Indian coastal shipping presently consists of old vessels, the dry cargo liners of coastal fleet are planned to be replaced gradually.

PROGRESS OF FAMILY PLANNING IN INDIA

Since the implementation of the family planning programmes in India upto June 1972, 10.7 million births have been averted in the country. The total number of couples protected by the programme is estimated at 12.84 million, representing 12.7 per cent of the couples in the reproductive age group.

Since the inception of the programme, a total of 11.83 million sterilisation operations were performed which gives a rate of 19.6 per thousand population. Again, a total of 4.36 million IUCD insertions were effected. The number of users of conventional contraceptives has also gone up.

AROMATICS PROJECT ON PRODUCTION STREAM

The Aromatics Project of the Indian Petro-Chemicals Corporation is expected to go on production stream soon. Project will have plants for the manufacture of Orthoxylenes, mixed xylenes and DMT.

The Corporation continues to implement the Olefins Project of the Petro-Chemicals Complex. This project will have plants for the manufacture of Ethylene, Propylene, Butadiene and Benzene. This Project is expected to go on stream, in 1974 and all the integrated downstream units of the Project will be in position by the middle of 1975.

COMMERCIAL PRODUCTION OF SWARAJ TRACTORS

The first Swaraj tractor designed and developed by the Central Mechanical Engineering Research Institute (CMERI), Durgapur is to roll out within a year's time. Its commercial production is being taken up by Punjab Tractors Ltd., Chandigarh. In the first phase, a capacity for 5,000 (20-30 HP) Swaraj tractors per year is being established.

The fully indigenous tractor incorporates a single level automatic depth-cum-position control hydraulic system. The company expects to expand the capacity to the licensed figure of 12,000 tractors per year in the second phase.

INDIAN CREDIT TO MAURITIUS

India is to make available to the Government o Maurititus a credit of Rs. 32.10 million. An agreement was signed recently to this effect betweent the representatives of the two Governments. The Mauritius Prime Minister referred to the agreement as "an extension of very substantial assistance to the Government of Mauritius for the implementation of develoment projects". The loan is re-payable in 20 years.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

DETOXIFICATION

A process for detoxification of aflatoxin contaminated groundnuts products has been developed by the Central Food Technological Research Institute. (CFTRI) Mysore.

Normally groundnut products are contaminated by a toxin known as aflatoxin. Aflatoxin being a public health hazard, it is essential to keep groundnut meal or protein isolate free from it. The new developed process enables to make groundnut meal/protein and many other products made therefrom free from aflatoxin, deodoured. The product can be used as a source of toxin free protein in any food formulation or for direct consumption. It is also able to raise the protein content of a variety of foods such as biscuits. weaning foods ice-cream mixes, etc.

The process involves suspension of groundnut meal in an alkaline medium mixing it with a suitale oxidising agent such as permanganate, hydrogen peroxide, potassium chlorate etc. and heating the mixture suitably. The material is then cooled and excess oxidising agent, is removed. The product is then dried and packed.

The process has been carried out by the CFTRI or a pilot plant having a capacity of 300,500 litres of protein liquor per batch.

The process has been used by the Institute for producing vagetable toned milk on a pilot plant of 1000 litre capacity. The produced toned milk was tasted and found to conform to the permissible limit of 30 micrograms per kilogram in respect of aflatoxin content as recommeded by the protein advisory group of WHO/UNICEF.

The main raw material required is groundnut meal. Besides, chemicals like oxidising agent, sulphuric acid, caustic soda, indicators enzyme catalase are required. All these materials are indigenously available.

As the process will be ancillary to the food industry, additional equipment needed would be stainless steel holding tanks, plate heat exchangers, temperature and PH measuring and controlling equipment, stirrers, pumps and all of these are available indigenously.

HIGH VOLTAGE MOTOR DEVELOPED

A high voltage motor, using for the first time thermosetting system of insulation based on mica paper, glass fibre and epoxy resin has been developed by the New Government Electric Factory (NGEF) Bangalore.

The use of this insulation system in the manufacture of motor is supposed to be the most advanced technique in India and was related for 630 KW at 66 kv and 1000 rpm.

The New Govenment Electric Factory plans to manufacture a wide range of motors with the use of this system.

VOLATILE FUNGICIDAL RESERVOIR STRIPS

Volatile Fungicidal Reservoir (VFR) strips used for the protection of finished leather goods and other materials including eatables have been developed by the Defence Research Laboratory (Materials) Kanpur.

Volatile fungicidal Reservoir strips are cardboard strips impregnated with a volatile fungicidal solution which are useful to protect finished leather articles and eatables. One or two strips are kept in the article to be protected against fungal attacks and then it is wrapped in polythene film bag. The effectiveness of the strips has been calculated for the period of six months to one year. The volatile inhibitor of the strip does not in any way produce adverse effect on the preserved store material.

The raw material used in the manufacture of volatile fungicidal reservoir strip is available indigenously. Although a new product, the demand for strips has been estimated at 20,00,000 par year.

The plant and machinery required for the production of V.F.R. strips, constitute (i) strip cutting machine and (ii) pressure impregnation devise.

POLIO VACCINE PRODUCED

For the first time in India polio vaccine has been produced successfully by the Haffkine Institute, Bombay after constant five years research work.

The life saving vaccine was being imported from U.S.S.R. and Yugoslavia uptill now. The vaccine can now be produced indigenously and is likely to be marketed by the end of 1972. This will enable to save several thousand rupees of foreign exchange.

The potentiality of exports of this vaccine is much from India since India is the second Asian country, next to Japan, to produce this vaccine indigenously. Most of the African and Asian countries, at present, are importing this vaccine from hard currency area.

The Haffkine Institute is also engaged in research on all kinds of communicable diseases like plague, cholera, typhoid and influenza and is producing biologicals for their cure. The Institute is also planning to set up a department of toxicology to carry on toxicology studies on drugs produced by it as well as by the private pharmaceutical firms or those referred by the Government.

TRADE PATTERN WITH YUGOSLAVIA

As a result of the agreement reached beween the Governments of India and Yugoslavia, the present system of trading on rupee payment basis will terminate by December 1972 and convertible currency payment system will come into force effective from January 1, 1973. This decision necessitated that during the terminal year of the rupee trade between the two countries, their mutual trade exchanges should balance so that neither party is obliged to carry additional rupee liability over to 1973. In view of this abjective, India's export trade plan with Yugoslavia for the year 1972 is of the order of about Rs. 160 million to match the availablity of the Yugoslav rupees funds in their account in India in that year.

With the introduction of convertible currency payment system there would be no obligation on the part of either country to import each others goods unless these are competitive on international basis from quality, pricing and delivery points of view. No doubt, many of India's manufactured products would then have to face competition from European sources who have a comparative advantage of transport charges and hence delivery periods. Nevertheless, since Indian exporters have already been able to enter the Yugoslav market and introduce manufactured goods both in finished and semi-finished form at competitive rates, the efforts can, no doubt, be sustained. Indian exporters who are not new to trade in free economy countries like West Furope, should be able to succeed in Yugoslavia also, on the basis of trading in free foreign exchange. The 50 per cent tariff concession available under the Tripartite Co-operation Agreement between India, Yugoslavia and Egypt should act as an incentive to the Yugoslav buyers to obtain their supplies from India.

The Yugoslav Government should be interested in sustaining and expanding commercial links with India and treat this country as a preferred source of supply in view of the close cooperation that existed between them at various international forums such as UNCTAD, Group of 77, Asian Group, Non-aligned Conference, etc. Also they should find it economical to make purchase from India even on payment of free foreign exchange. It is proposed by the Foreign Trade Ministry to suggest to Yugoslav Government to evolve a joint strategy for 1973 and onwards under which both Governments would bilaterally continue to accord to each others' goods preferential treatment provided the products are internationally competitive in prices and quality.

Presently Yugoslavia is purchasing a large number of manufactured items, consumer goods, etc. from several countries, which India is also in a position to supply.

In 1971, Indian exports to Yugoslavia were of the order of Rs. 258.95 million while the Indian imports from that country were of the order of Rs. 58.33 million. Five years before in 1967, Indian exports were Rs. 146.7 million and imports Rs. 138.2 million.

The growth in Indian exports during the past few years was mainly due to the fact that India had to repay large sums to Yugoslavia as a consequence of the utilisation of Yugoslavia credits and on account of purchase of ships, tankers etc. on deferred payment basis. For this period, it was possible for India to increase its quantum of exports to that country as also to diversify the export pattern. Several manufactured products in the manufactured sector such as auto trucks, jeeps, tractor parts, wire ropes, knitting machines, electrical cables, rubber tyres and tubes, etc. were exported to Yugoslavia and the percentage of exports of manufactured products went up from less than 20 percent in 1967 to more than 45 percent in 1971. In respect of engineering goods alone, exports developed from a figure of Rs. 5 million in 1967 to Rs. 57 million in 1970. In 1971, the major items of export from India to Yugoslavia were tanned and semi-tanned hides and skins, de-oiled cakes, rubber manufactures including tyres and tubes, jute products, iron ore and engineering goods, raw cotton, pig iron, coir yarn and coir products, tea, spices and cotton textiles.

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RARE EARTHS FOR EXPORT

Exports of rare earths and minerals produced by Indian Rare Earths Ltd., Pilcourt, 111, Maharishi Karve Road, Bombay-20, a public sector undertaking, amounted to Rs. 17.00 million in 1971-72 as against Rs. 12.4 million in the preceding year. The Company exported rare earth products worth Rs. 8.50 million to highly quality-conscious and competitive markets like U.S.A., Japan and Europe. The exports of ilmenite to Japan were of the order of Rs. 8.00 million.

Recently, the Company has bagged an order from Japan for the supply of 3,500 tonnes of zircon. It is expected that more export orders for this material would materialise. The Company hopes to increase its exports in 1972-73. It does not import any raw material.

COLD STORAGE EQUIPMENT ON EXPORT STREAM

Among light electrical goods, Indian exports of refrigeration and air conditioning equipment account for a major share. The export value of air conditioning and refrigeration applicances during 1971-72 was estimated at Rs. 9.00 million as against Rs. 6.13 million during the preceding year registering about 50 per cent increase. The export value during 1969-70 was Rs. 7.79 million. In fact, from a small amount of Rs. 3,05,000 in 1960-61, the exports rose constantly from year to year.

During 1970-71, Nigeria, Thailand and Sri Lanka were the prominent destinations for India-made refrigeration and air conditioning equipment. Besides, parts and accessories of refrigerators and air-conditioning equipment were mainly absorbed by a number of countries including Zambia, U.S.S.R., Australia, Kuwait, Sri Lanka, Iran, Sudan and Qatar.

In the year 1971-72, the main importing countries included Kuwait, Singapore, Malaysia, Dubai, Zambia, Saudi Arabia, Greece, Nigeria, Indonesia, Abu Dhabi and Iran.

Recently, M/s. Frick India Limited, 13/3, Mathura Road, Faridabad, one of the firms engaged in the line secured an order worth Rs. 230,000 for supply of cold storage equipment from Hong Kong against stiff competition from industrially advanced countries. The buyers, being convinced of the quality of the firm's refrigerators and cold storage equipment, at par with the American and European equipment, selected the Indian firm for placing the order.

OVERSEAS DEMAND FOR COOLING TOWERS

Cooling towers which are mainly used for the manufacture of air conditioning equipment are capturing steady demand in the overseas markets in recent years.

The towers which were being imported in India from West European countries till recently, are now being produced indigenously. In fact, the production of this item started in India in 1963. M/s. Paharpur Cooling Towers, 1-B, Judges Court Road, Calcutta-27, a firm engaged in the line, has been in export business since 1968. The firm's exports rose from a small beginning of Rs. 1,10,230 in 1968-69 to Rs. 1.66 million in 1971-72. During the year 1970-71, its exports amounted to Rs. 1.11 million as against Rs. 0.73 million worth exported by it in the preceding year.

The firm has developed technical expertise to manufacture cooling towers to satisfy quality conscious customers at home and abroad. The firm is also manufacturing all the components of cooling towers indigenously.

EXPORTS OF INDIAN BICYCLES

The Indian bicycle industry is making a good headway in the exports of bicycles, bicycle parts and accessories over the years. There is a large demand for Indian bicycles not only from the developing countries but also from the most industrially advanced nations of the world. The repeat orders from advanced countries for Indian bicycles clearly indicate high level of the manufacturing expertise and technical skill achieved by the Indian bicycle industry.

From a small export value of Rs. 0.8 million in 1959, the foreign exchange earnings rose to Rs. 24.34 million during 1970-71 (2,02,904 bicycles). The constant rising exports of bicycles reveal the fact of popularity achieved by them in the overseas countries. Besides bicycles, the exports of bicycle parts and accessories netted Rs. 46.33 million in 1970-71.

The export value of bicycles including bicycle parts and accessories during the first 11 months of 1971-72 (April 71-February 72) was recorded at Rs. 69.39 million. Of this, export of bicycles amounted to Rs. 16.0 million (124,393 numbers). Nigeria was the major importing country of bicycles whose intake during the period amounted to Rs. 5.43 million (41,471 numbers), followed by Iran which imported worth Rs. 3.39 million (30,904 numbers) and Indonesia at Rs. 1.64 million (12,248 numbers). Besides, bicycle parts and accessories earned foreign exchange to the tune of Rs. 53.12 million. Of these, bicycle chains, fetched Rs. 4.39 million. Among other items, free

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wheels earned Rs. 4.79 million, bicycle hubs Rs. 2.41 million, rims Rs. 2.61 million, saddles Rs. 2.25 million, bicycle spokes Rs. 1.34 million and other bicycle parts & accessories worth Rs. 35.33 million. For the year 1972-73, the target has been placed at Rs. 100 million.

Recently, one of the prominent bicycle manufacturing companies, M/s. Roadmaster Industries of India, Rajpura, Punjab received a sizeable order for supply of cycles to the United States to the tune of $ 1 million. Indian bicycles are in good demand in the U.S. market. Along with the bicycles, components and parts are also imported by that country.

The export order is to have been executed by the above firm by the end of second quarter of 1972. The firm believes that by resorting to strict quality control and timely dispatches, it would not be difficult for it to meet the increasing demand from the overseas markets.

One more firm in the line, M/s. Atlas Cycle Industries Limited, Sonepat, had earlier secured an export contract for supply of 1,25,000 sport bicycles at a value of Rs. 20 million. This order is to be completed by the end of 1974. The sports model bicycle has only 4 per cent import. Besides U.S.A., the firm has a number of export orders on hand. The firm has received even repeat orders from a developed country like U.K. In addition to this, the firm has even entered the field of technological exports.

EXPORT TRADE IN CRUSHED BONES

An estimated Rs. 49 million was earned in foreign exchange from the export trade of crushed bones and bone-grist in 1971-72 as against Rs. 45.74 million in the previous year.

The major importers of crushed bones are Belgium, U.K., U S.A., German Federal Republic and Japan. In the first eleven months of 1971-72 Belgium imported 15 million kg. valued at Rs. 11.30 million. Purchases by U.K. amounted to 10.2 million kg. at a value of Rs. 7 million while those of U.S.A. were 8.3 million kg. at Rs. 6.4 million. German Democratic Republic imported worth Rs. 5.6 million while Japanese purchases amounted to Rs. 4.56 million. Bone-grist was mainly imported by the U.K. at a value of Rs. 1.49 million out of the total exports of Rs. 2.7 million in the eleven months of 1971-72.

The entire group of the crude animal material including bones, ivory horns, animal bristles, human hair, cattle guts etc. fetched Rs. 83.53 million in the first eleven months of 1971-72.

M/s. Hyland Trading Co. Bombay succeeded in the supply of crushed bones and bone grist abroad worth Rs. 5.65 million to West Germany, Belgium, France, U.K. and German Democratic Republic during 1971-72. Another firm, M/s. Rallis India Ltd., Ralli House, 21, Raveline Street, Bombay, exported their products to the tune of Rs. 2.59 million in the same year to Belgium, Japan, France, German Democratic Republic and Federal Republic of Germany. Next in importance was M/s. Reliable Traders, Bombay who have earned through their export effort in 1971-72, Rs. 1.88 million as compared to Rs. 608,000 in the preceding year. Their supplies were mainly effected to U.S.A., Belgium, Japan and Bulgaria.

M/s. Lalitpura Bone Mills, Bombay also succeeded in earning Rs. 1.77 million through their exports to German Democratic Republic, U.K., Japan and France.

SIZEABLE GROWTH TREND IN MARINE PRODUCT EXPORTS

India's export trade in marine products has earned by far more foreign exchange in 1971-72 than in the preceding year, although at the same quantum of offtake. The quantity exported was 35,525 tonnes and the value was Rs. 445.5 million, as against 35,885 tonnes valued at Rs. 351.0 million. The export value netted in 1971-72 was the highest ever recorded for these products. It was only Rs. 71.0 million in 1965-66, Rs. 173.7 million in 1966-67, Rs. 197.20 million in 1967-68, Rs. 247 million in 1968-69 and Rs. 334.5 million in 1969-70.

The export earnings of frozen prawns have improved quite substantially - from Rs. 14.2 million in 1962-63 to Rs. 112 million in 1966-67, Rs. 245 million in 1970-71 and Rs. 371 million in the following year. There was an improvement in the overseas supply of frozen lobster also from Rs. 5.3 million in 1970-71 to Rs. 13.5

million in 1971-72. Frozen froglegs, canned and dried prawns and dried fish are the other important varieties exported.

Frozen shrimps and lobster worth Rs. 5 million are to be exported to the U.S. and Japanese markets by the end of the current year by M/s. Gujarat Agro Marine Products Ltd., Ahmedabad, a subsidiary of the State owned Gujarat Agro Industries Corporation.

The firm received encouraging orders and enquiries from various other countries. Even within six months of its coming into being, it exported shark fins and fish maws worth Rs. 0.4 million to Singapore and Hong Kong.

Recently the maiden fleet of the company consisting of five 42-foot mechanised trawlers has started operating in waters of the Saurashtra Coast. Within a month's time the strength of the fleet is expected to rise to ten. This firm has also started the erection of a processing complex of its own which will be ready by May, 1973. The complex, costing about Rs. 3 million, will have a processing house with a capacity of 200 tonnes.

The Company, which is proposing to start the processing of shark fins is also currently exploring other markets in South East Asia and West Europe.

GLASS LENSES TO SOVIET UNION

The Soviet Union have so far imported 200,000 pieces of glass lenses from India in the current financial year (1972-73). The Indian firm, Messrs. Opthalmic Glass Limited, Durgapur (West Bengal), a public sector undertaking, was built up with Russian collaboration designed to produce 300 tonnes of blank and coloured lenses every year.

India's manufacture in the field ef optical glasses and blanks for spectacle lenses has made progress in recent years. The products are in keen demand abroad. Country-wise, the major importers have been Sri Lanka, U.S.A., Hong Kong, Zambia, Saudi Arabia and Bahrain Islands.

COPPER WINDING WIRES TO KUWAIT

Supper enamelled copper winding wires of about 10,410 kg. were exported during 1971-72 to Kuwait by an Indian firm fetching foreign exchange worth Rs. 0.13 million. The firm, M/s. Gangappa Cables, Private Limited, Uppal Road, Hyderabad (A.P.) exported these wires to the tune of Rs. 0.21 million in the preceding year to the same market.

The Hyderabad firm has also succeeded in supplying their products to other markets such as Singapore, Sudan, Jordan, Thailand, Lebanon, Iran, Burma and Dubai. Apart from the super enamelled copper winding wires they exported round paper covered copper winding wires, aluminium enamelled winding wires and aluminium paper covered winding wires.

As on September 1, 1972, the export orders pending with the firm were from Kuwait (2050 kg.), Singapore (2000 kg.), Dubai (1800 kg.) and Sudan (1025 kg.).

The quantum produced by the firm in 1971-72 totalled over 651 tonnes at a value of Rs. 11.25 million. Their product range in the year included super enamelled and paper covered copper and aluminium winding wires. Their installed capacity is of the order of 1200 tonnes per year. They have plans for improving their production capacity to an additional 900 tonnes a year. The firm is engaged in advanced research work for the manufacture of polyester enamels used as a raw material for the production of polyester enamelled wires.

The wires produced by the firm conform to British and other international standards as also to the Indian Standards Institution (ISI). They have succeeded in developing their own enamels for the manufacture of wires used in hermatic motors. They have also plans for diversifying their production sphere. For instance, they are soon to take up the manufacture of enamelled wires up to 48 SWG as also that of rectangular strips with enamel and paper coverings. Presently, they are engaged in the development of indigenous machinery for the production of fine gauged enamelled wires.

S. T. C. RECEIVES LARGE EXPORT ORDERS

The State Trading Corporation of India (STC) has recently received export orders worth about Rs. 116 million for the supply of jute goods, shoes and cement. The order for the supply of jute goods is worth Rs. 45 million and was placed by the Sudan. While Soviet Union sought to import shoes worth about Rs. 26 million, Western Europe placed another order for shoes worth Rs. 5 million. About Rs. 40 million worth of cement is to be exported to Bangla Desh.

In the last 5 months, the Corporation's exports rose by 14 per cent from Rs. 250 million in the corresponding period last year to Rs. 290 million this year. Their imports increased by 3 per cent from Rs. 480 million to Rs. 500 million.

The Corporation's major items of export include jute goods, knitwear, castor oil, leather and leather products, coffee, artsilk fabrics, tobacco, human hair, tea, army softwear and salt. Despite the fall in export earnings of human hair in the last few years, it is hoped that these exports will be revived on a large scale to earn worth about Rs. 25 million in the current year. Indian tea is now finding good market in Latin American countries.

The Projects and Equipment Corporation, which is a subsidiary of the S.T.C., has also received large orders for railway wagons and garage equipment. During the last 5 months, this Corporation secured export orders worth about Rs. 280 million compared to Rs. 160 million by August, 1971. For the first time, the Corporation secured orders worth about Rs. 15 million from the U.S.S.R. for the supply of garage equipment like compressors and pumps. Poland has placed order for 1000 railway wagons worth about Rs. 100 million. The Corporation signed recently a Protocol with Sudan for supply of 800 wagons, coaches and signalling equipment at a value of Rs. 80 million.

The above Corporation has supplied project profiles to Brazil and Peru for 5 projects. These are for heavy engineering complex, heavy electrical complex, plate vessel plant, vitamin 'C' plant and black tube plants. They finalised arrangements for the setting up of a 200,000 tonnes steel plant in Sri Lanka at a cost of Rs. 8 million and are negotiating for setting up a textile mill in Turkey.

EXPORT PERFORMANCE AND POTENTIAL

FRUITS AND VEGETABLES

AN EXPORT REVIEW

The year 1971-72 has witnessed a sizeable growth in India's export earnings of fruits and vegetables. The first 11 months of the year recorded an export earning of Rs. 661.03 million compared to Rs. 588.53 million secured in the same period of the preceding year.

Fresh fruits and nuts were particularly active on the export front. They earned Rs. 596.05 million as against Rs. 491.95 million. Among fresh fruits, bananas, oranges, lemons and limes, grapes and apples were supplied. Fresh bananas were exported to the tune of 4.17 million kg. at a value of Rs. 1.84 million. Kuwait was the principal importer at a value of Rs. 1.30 million. Bahrein Islands, Qatar, Dubai and Nepal were the other markets.

Among edible nuts, cashew kernels constitute the major variety of export. Broken cashew kernel in the period under review fetched Rs. 113.28 million while whole cashew kernel secured Rs. 462.77 million. The broken variety was mainly supplied to U.S.S.R. (Rs. 58.61 million) which has, in fact, imported over half of the total. U.S.A. was the next important market (Rs. 34.48 million). U.S.A. and U.S.S.R. were again the major markets for the cashew kernel (whole) variety (Rs. 245.39 million and Rs. 105.13 million respectively). Coconuts and walnuts were among the other edible nuts exported in sizeable quantity. Walnuts in shell netted an export earning of Rs. 5.39 million and walnut kernels Rs. 8.22 million in the first 11 months of 1971-72. German Federal Republic, U. K. and Poland were the major importers.

Mangoes were also supplied overseas in sizeable quantity (1.34 million kg. valued at Rs. 2.6 million). U. K. alone purchased Rs. 1.17 million worth. The bulk of pine apple exports was absorbed by the U.S.S.R. while Italy has been the important market for fresh tamarind. Export of dry tamarind secured

Rs. 1.81 million. Among the principal importers were U. K., Bahrein Islands, Italy, South Yemen People's Republic and Saudi Arabia.

Preserved fruits and fruit preparations are equally prominent on India's export trade, having netted Rs. 18.48 million in the period under review, against Rs. 14.19 million during the corresponding period of the previous year. Among jams, marmalades and jellies, mangoe jams from India are especially sought by foreign markets including Kuwait, German Federal Republic, U. K. and U.S.S.R. Fruit and vegetable juices are also popular in the world markets. Mangoe juice, for instance, was exported to U.S.S.R. to the tune of Rs. 8.67 million, out of its total export value of Rs. 13.15 million. South Yemen People's Republic and Saudi Arabia were the other important markets.

Among the fresh and preserved vegetables, Nepal imported potatoes worth Rs. 1.58 million. Sri Lanka was an important market for garlic at Rs. 1.92 million. Onions are supplied to several markets abroad and earned Rs. 21.00 million. Malaysia, Singapore and France are among the principal importers.

Mangoe chutney, pickles, etc. are the other famous varieties of food preparations supplied by India to world markets. These items earned nearly Rs. 8.13 million and were purchased by many markets abroad including Canada, Denmark, German Federal Republic, Netherlands, U. K. and U.S.A. U.K. however is the most important market having absorbed Rs. 4.14 million worth of pickles with sugar and Rs. 2.07 million worth of pickles without sugar.

PENDING ORDERS FOR RAILWAY WAGONS

The export orders for supply of wagons on hand with Indian firms as on September 1, 1972 include 1000 wagons to Hungary at a value of Rs. 58.5 million. The delivery schedule for these wagons is to be completed by 1972-73. To Poland, the pending orders are for 500 covered wagons at a value of Rs. 27 million. 492 wagons are to be supplied to Iran, at Rs. 40.10 million during 1972-73. In the same year, Sri Lanka is to import 40 timber wagons at a cost of Rs. 2.10 million. To Iran 45 M. G. hopper wagons are to be supplied for a value of Rs. 2.9 million while East Africa is to import 100 wagons at Rs. 9.3 million.

But the largest pending orders are from Yugoslavia for the supply of 1300 covered wagons and 2300 open wagons at a total value of Rs. 374.5 million. The supplies are to be completed by 1974.

MARKET ORIENTATION TOURS AND EXPORT ORDERS

The Ministry of Foreign Trade organised market orientation tours during 1971-72 in order to enable exporters representing specific product groups to visit selected markets. The product groups that have so visited abroad succeeded in securing export orders for various items. The orders, for instance, for leather and leather produets amounted to Rs. 3.88 million; processed foods, spices and nuts Rs. 2.17 million; handicrafts Rs. 8.95 million; automobile ancillaries Rs. 0.77 million; marine products Rs. 20.5 million; plasticware Rs. 12.4 million and light electricals Rs. 0.88 million.

The countries selected for the visits by the teams during 1971 were Italy, Switzerland, West Germany, Denmark, U.K., U.S.A., Japan, Hong Kong, Thailand and Singapore for leather and leather products; Switzerland, West Germany, France, Denmark, Sweden, U.K., U.S.A., Canada, Japan, Singapore and Australia for processed foods, spices and nuts; Kuwait, Lebanon, Italy, Switzerland, West Germany, Denmark, Sweden, France, U.K., U.S.A., Japan, Canada, Hong Kong, Singapore and Australia for handicrafts; Iran, Lebanon, Kenya, Egypt, Switzerland, West Germany, France, U.K., U.S.A., Japan, Hong Kong, Philippines, Singapore and Malaysia for automobile ancillaries; Switzerland, West Germany, Denmark, Belgium, France, U.K., U.S.A., Canada, Japan, Hong Kong and Singapore for marine products; Kuwait, Lebanon, Sudan, Ethiopia, Kenya, Italy, Switzerland West Germany, France, U.K., U.S.A.. Canada, Japan, Hongkong, Singapore and Malaysia for plasticware products; Kuwait, Iran, Lebanon, Egypt, Sudan, Kenya, Ethiopia, Nigeria, Switzerland, West Germany, France, U.K., U.S.A., Canada, Australia, Philippine., Singapore, Malaysia and Thailand for light electrical goods.

EXPORT POSITION OF COIR AND COIR GOODS

Exports of coir and coir goods during the first five months of 1972-73 (April-August '72) registered a marginal improvement of Rs. 0.13 million over the export performance during the corresponding period of the preceding year. During the period in 1972-73, the export value was Rs. 48.7 million while in the comparable period of the previous year it was of the order of Rs. 47.4 million.

A large number of items constitute the exports, including coir fibre, coir yarn, mats and mattings, coir rugs and carpets, coir rope and curled coir. During the comparable periods of 1972-73 and 1971-72 the export value of these items was of the order of Rs. 26.09 million and Rs. 21.26 million in respect of coir yarn, Rs. 18.65 million and Rs. 20.66 million for coir mats, Rs. 2.62 million and Rs. 3.05 million in the category of coir mattings and Rs. 0.59 million and Rs. 1.85 million for the item of rugs and carpets. Among the rest of the categories the export figures were : Rs. 0.46 million and Rs. 0.24 million for curled coir, Rs. 92,957 and Rs. 1,55,744 for coir rope.

The decline in the exports of mats, rugs and carpets, was more than compensated by the rise in the offtake of coir yarn, curled coir and other coir sorts.

In the first eleven months of 1971-72, raw and processed coir fibre earned foreign exchange worth Rs. 1 million, while coir yarn exports were value at Rs. 54.47 million, coir carpets and floorings Rs. 12.50 million, coir mats and matting Rs. 49.5 million.

EXPORT CONSORTIUM FOR SUGAR MILL MACHINERY

The Indian sugar mill machinery manufacturers have formed a consortium to make a strong bid for an Indonesian international tender to renovate and modernise that country's sugar industry at a total cost of about $ 100 million (Rs. 750 million). The Indonesian tender is one of the biggest engineering deals that India is seeking. The Indian sugar mill machinery industry has advanced substantially and is able to quote competitive rates.

The installed capacity of the industry is of the order of Rs. 210 million, while the actual production was Rs. 146 million in 1970. The industry has achieved a high indigenous content for a complete sugar plant of 1250/2000 tonnes of crushing capacity per day; the import content is of the order of Rs. one million (including boilers) which is about 8 per cent of the value of the complete plant. Milling plants, boiling house equipment, continuous centrifugals and sugar diffusion plants are now manufactured in India. Large-size pin type mills have also been developed. The manufacturing units are now gearing up to fabricate and supply sugar plants up to around 3000/4000 tonnes per day crushing capacity.

The sugar mill machinery made in India has already made a mark on export front. Major purchasers of the machinery were Sri Lanka, Kenya, Nigeria and Uganda.

TRADING RELATIONS WITH NEIGHBOURING COUNTRIES

India is maintaining close trade contacts and cooperation with the neighbouring countries. A long-term Treaty of Trade and Transit has been concluded with Nepal. The Treaty, among others, governs trade between the two countries. A Trade Arrangement was also concluded with Afghanistan. As in the case of Nepal, the arrangement with Afghanistan aims at development, expansion and diversification of trade for mutual benefit. A three tier trade agreement was signed between the Governments of India and Bangla Desh in March 1972. India's trade with Sri Lanka is also governed by a Trade Agreement. In addition, a Joint Committee on Economic Cooperation has been set up. The Joint Commission for Economic Cooperation between India and Iran has been in operation since 1969. Thus the Indian Government have taken and still continue to take measures aiming at trade expansion and closer economic cooperation with neighbouring countries.

UPTREND IN EXPORT OF TEXTILE FIBRES

The exports of textile fibres and their wastes (not manufactured into yarn, thread or fabrics) recorded an increase of Rs. 37.43 million in the first 11 months of 1971-72 (April 71 - February 72) over the exports during the corresponding period of the preceding year (1970-71). The exports during 1971-72 (April 71-February 72) improved to Rs. 292.08 million from Rs. 254.65 million, effected during the comparable period of the previous year.

The main categories which constituted the exports include : Silk, wool and other animal hair (except human hair), cotton, jute, vegetable fibres except cotton and jute, synthetic and regenerated fibres (man-made fibres) and waste material fromt extile fabrics (including rags). Jute which constitutes the major item of fibre exports contributed to this increase despite a substantial fall in exports of silk, wool other animal hair, other and synthetic and regenerated fibres. The exports of jute fetched Rs. 72.37 million during the first 11 months of 1971-72 (April 71-February 72) as against Rs. 38.87 million worth exported during the corresponding period of the previous year registering about 85 per cent increase in the exports in this category. Besides, exports improved to Rs. 169.27 million from Rs. 152.81 million in respect of cotton and Rs. 4.04 million from Rs. 3.86 million in the category of waste materials from textile fibres.

Improvement in the exports of these categories has compensated the decline in the exports in other categories like silk, wool and synthetic and regenerated fibres. During the comparable periods of 1971-72 and 1970 71 the export figures in these categories were : Rs. 3.73 million and Rs. 5.75 million in respect of silk; Rs. 39.99 million and Rs. 48.54 million in the category of wool and other animal hair (except human hair); Rs. 2.24 million and Rs. 4.12 million in the case of vegetable fibres except cotton and jute; and Rs. 0.48 million and Rs. 0.71 million in the field of synthetic and regenerated fibres.

Direction wise, jute fibre and waste were exported to U.S.S.R., U. K., Belgium, Australia, Sweden, Uganda, Spain and Federal Republic of Germany, while cotton fibres and wastes were mainly absorbed by Japan, Belgium, U.S.A., Federal Republic of Germany, New Zealand. Yugoslavia, Tanzania, Czechoslovakia, Abu Dhabi, Saudi Arabia.

France, U. K., U.S.A., Nepal and Netherlands, were the main destinations for waste materials from textile fabrics (including rags). For silk textile fibres and waste Japan, Italy, Federal Republic of Germany, Netherlands, France, Norway, U. K., and U.S.A., were the principal importing countries. U.S S.R., U. K., Italy, Belgium, France, Netherlands, U.S.A., German Democratic Republic, France, Australia, etc. were the important destinations for wool and other animal hair excluding human hair.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

PRODUCTION OF CRUDE OIL

Crude oil production in India was of the order of 4.20 million tonnes from the oil fields of Gujarat and Assam during the first seven months of 1972. The current rate of production of the crude is approximately 7.5 million tonnes during the year. In July 1972 alone 610,000 tonnes of crude was extracted from the wells.

The Oil and Natural Gas Commission (ONGC) supplied to the refineries 341,000 tonnes of crude from its various fields. In terms of foreign exchange the value of this crude would be approximately Rs. 39.2 million.

M/s. Oil India Limited which operates only in certain areas of Assam, produced during July 1972 over 265,000 tonnes of crude and 78.78 million cubic metres of gas. The Assam Oil Company produced 7680 tonnes of crude oil and 4.56 million cubic metres of gas during the period.

The ONGC has already started exploratory work upon 20 new structures in 1970-71. In that year 90 wells were drilled with metreage of 189,000. This exploration was initiated in the known oil bearing reserves in the Cambay Basin of Brahmaputra. The ONGC also proposes to drill three wells in Kutch and

Jaisalmer. Siesmic surveys have indicated that there are big oil reserves in Tripura also. Besides, in the State of Jammu and Kashmir exploratory work has already been commissioned. The ONGC has futher plans to take up exploratory work in Andamans and Sundarbans in West Bengal.

India has been exporting sizeable quantities of petroleum products. In 1971-72 (first eleven months) for instance, the exports amounted to as much as Rs. 63.29 million. Of these exports, motor spirit contributed Rs. 27.45 million (mainly to Democratic Republic of Korea), kerosene Rs. 11.70 million (to Nepal), diesel fuels Rs. 17.5 million and lubricated oil grease (Rs. 4.4 million).

MINERAL DEPOSITS IN RAJASTHAN

Mineral deposits worth many million rupees were discovered in Rajasthan during the exploration that took place in the past decade. The Goelogical Survey of India has revealed that the total reserves in Madhan, Kidhan, Kolihan, Central Block Kolihan, South Block Kolihan, North Block Akwali and Satkui areas in the Khetri Copper Belt are estimated at a value of 63 8 million tonnes of one per cent of copper. As such total copper content of the metal has been estimated at 633,000 tonnes.

Besides this, copper reserves were found in Bhagoni and Kho Dariba areas of Alwar Copper Belt, Pur Dariba areas of Bhilwala District and Debri area of Sirohi District. The value of the reserve has been placed at Rs. 850 million.

Zinc, another important mineral, has been found in Rajpura Dariba area of Udaipur District as also in Baroi Mogra and Balaria areas of Zawar Belt.

Similarly among other minerals, sulphur deposits were located at Saladipura area of Sihar District. In addition to this, the Maton, Kanpur, Karbaria, Kagurha areas of the Udiapur District and Birmania area of Jaisalmer District were found to be rich in the phosphorite deposits which were estimated at 13.26 million tonnes with 17.72 per cent mineral content.

Similarly, limestone deposits of a quantity of 1604 million tonnes have also been found in Pali, Jodhpur, Nagaur, Ajmer and Bindi Districts of the State. As much as 917 million tonnes of Gypsum reserves have also been found in Bikaner and Nagaur District.

INDIA TO PRESS FOR SPECIAL DRAWING RIGHTS

India desires the continued creation of Special Drawing Rights (SDR) beyond 1972. The Union Finance Minister is to urge for the same at the Annual Meetings of International Monetary Fund and World Bank to be held in the last week of this month. He will also urge for speedy action for providing link between S.D.Rs. and development aid.

SDRs were created initially for a three year period i.e. 1970 to 1972, but so far there has been no recommendation from I.M.F. on further issues of SDRs, which as additional liquidity is of great importance to developing countries.

India's Finance Minister is to ask for the continuation of the SDR arrangement, pending detailed studies on the role of SDRs as a primary reserve asset as part of international monetary reforms.

The Fund meeting is to consider international monetary situation in the wake of the floating of British Pound which upset the December, 1971 Agreement among the Group of Ten rich nations on readjustment of exchange rates. I.M.F. had hailed the agreement as a major contribution to the re-establishment of equilibrium in international payments.

PUMPS AND COMPRESSORS UNIT GOES ON STREAM

The Bharat Pumps and Compressors, a Government of India undertaking at Naini, (Near Allahabad) is to go into production by next March. The project is to have an annual turnover at full production of Rs. 180 million.

The annual turnover of the gas cylinder unit of the company will be about Rs. 30 million and will help save foreign exchange of about Rs. 135 million every year. The project entered into collaboration with four foreign firms at a total capital outlay of Rs. 65.9 million in the first phase, and Rs. 106.8 million in the second phase. The unit will produce high pressure gas cylinders for dissolved acetylene gas. At a later stage, the project will undertake manufacture of hollow tubular bodies.

INDIA WINS PACKAGE AWARD

The World Star 1972 package award has been secured by India in a contest held recently at Tokyo. This is the first time that an Indian entry won the covered award.

The award was secured for a presentation pack of WIMCO matches designed and manufactured by the Metal Box Company Ltd., Calcutta.

Sixteen Nations from all over the world Participated in the contest including India for the award. The World Star 1972 was instituted by the World Packaging Organisation consisting of the Packaging Federations in Asia, Europe and North America.

BOKARO'S COKE OVEN BATTERY COMMISSIONED

With the recent inauguration of the first coke oven battery, a major step towards the commissioning of the first blast furnace complex of the Bokaro steel plant has been taken. The battery will be the first in the chain of four batteries for the stage I of the steel plant. This constitutes the biggest coke oven battery in India with a production capacity of 48,000 tonnes of coke per month. With the commissioning of this battery, the Bokaro plant will start supplying 15,000 tonnes of tar to the Indian Iron and Steel Company (IISCO) and will help increase the company's ingot steel production. Ammonium sulphate in small quantity is also being made available shortly.

The production of electric power in the power plant of Bokaro Steel plant has already stabilised. It would be possible for the project authorities to release 3035 megawatts on continuous basis to Damodar Valley Corporation grid. This will alleviate to a certain extent the power difficulty in the Eastern region. The first blast furnace will be the climax of all these operations and is expected to be commissioned by this month end.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

SCIENTIFIC PROCESSES FOR INDUSTRIAL DEVELOPMENT

Scientific research has made important contribution to the development and diversification of Indian industry. Several new processes of manufacture have helped save substantial sums of foreign exchange by way of import substitution and import restriction. What is more important, the new techniques and invnovations have placed Indian industry in line with developments elsewhere in the world.

The Council for Scientific and Industrial Research (CSIR) is playing a vital role in industrial progress by conducting applied research. With its large network of 30 national laboratories in the country, the council aims at industrial research through Cooperative Research Associations. Currently in India, there are twelve such Associations which conduct research in diverse industrial fields such as textiles, jute, artificial fabrics, paints, cement, plywood, etc. The C.S.I.R.'s 44 research establishments are contributing constantly to achieve self-sufficiency in strategic products and processes. The wide industrial sectors in which noteworthy contribution has been made by the C.S.I.R. include electronics, leather, glass and ceramics, chemicals, food industry, construction engineering, metals, fuel, etc.

Electronics which have wide applicability in the field of entertainment, industry science have assumed prime importance in research. The growth of this technology in India has been substantially made by the Central Electronics Engineering Research Institute (CEERI), Pilani and the National Physical Laboratory, New Delhi. The CEERI's excitation control system for diesel electric locomotives project is expected to save foreign exchange to the tune of Rs. 3.0 million per year. Besides, the CEERI's noteworthy contribution in designing and developing television receivers indigenouly has helped the country to reduce the imports to the maximum possible.

In its move towards saving foreign exchange, the National Physical Laboratory, New Delhi, has been successful to the level of Rs. 2.7 million per year by developing processes for making ferrite of hard, soft and professional grades and for microwave components.

Adding a link in the strong chain of various important processes developed by the different laboratories operating under CSIR, the National Geophysical Research Laboratory, (NGRI) Hyderabad, has designed, developed and produced a number of geophysical instruments such as restivity meter, fluxgate and protein precession magneto-meters, siesmic timer, electromagnetic prospecting unit, geophone etc. at a low cost with a view to save valuable foreign exchange.

In the field of leather, the Central Leather Research Institute (CLRI), Madras, has been able to replace, to a certain extent, the imported varieties of syntans. The Madras Institute has developed processes for tanning material and for improving farming and finishing of leather. These important processes are expected to reduce the imports of these leather materials which presently are at the rate of Rs. 2 million (syntans) and Rs. 10 million (other auxiliaries) annually.

In respect of scientific research in glass and ceramics, the Central Glass and Ceramic Research Institute (CGCRI), Calcutta, has been successful in developing a number of processes. The CGCRI has to its credit the development of processes for bricks from waste mica, optical glass (which is of strategic importance), infra-red glass, quartz, water filter candles, etc. Thus, CGCRI has helped the country to save foreign exchange of a value of Rs. 25 million annually. All these products, now being produced by the processes of CGCRI, were being formerly imported from abroad.

The processes developed by these Research Laboratories in India have paved the way for development of various industries. Using the process developed by the (NCL), Poona, for acetanilide, the Hindustan Organic Chemicals Ltd. has set up a plant for production of this vital chemical. The production of acetanilide by the plant is expected to be of the order of 2000 tonnes annually valued at Rs. 12.5 million. This chemical was being imported uptil now. Widely used as plasticisers, dioctyl and debulyl phthalates are imported annually to the tune of Rs. 8.03 million. The process for manufacture of this material with turnkey design, has been leased to two firms for commercial production by the NCL, Poona. One of the firms has already gone on production stream and its annual production is expected to be of the order of 5000 tonnes, valued at Rs. 37.5 million.

The processes developed by the Central Food Technological Research Institute (CFTRI), Mysore, for the manufacture of baby food has enabled the country to save foreign exchange to the tune of Rs. 90 million annually. Similary the Structural Engineering Research Centre (SERC), Roorkee, conducted study on steel and concluded that steel used as reinforcement could be saved to the extent of 30 per cent worth Rs. 450 million annually by using improved quality of reinforcing bars, known as deformed bars in all reinforced concrete structures. Currently these high yielding bars are being manufactured by TISCO. In respect of transmission line towers too, it has been envisaged that if improved designs of towers perfected by the SERC are used in place of conventional ones, the country will be in a position to save foreign exchange to the tune of Rs. 800 million during the current five Year Plan. There is a good demand for the designs from the leading manufacturers of transmission line towers.

RESEARCH FOR AGRICULTURAL PROGRESS

Progress of agricultural research has helped the Indian economy in boosting its foodgrain production. The contribution of agricultural research can be measured from the fact that the production of wheat which was only 5.6 million tonnes in 1947 increased five-fold to about 26 million tonnes now. Since 1947 the yield of rice also has doubled. Cotton production went up from 2 million bales to 6.5 million bales a year.

Against only Rs. 600,000 spent on agricultural research in 1947, the Indian Council of Agricultural Research today spends nearly Rs. 260 million through their network of 23 research institutes, 8 soil conservation centres and 19 agricultural universities which turn out about 8,000 graduates every year.

The investment made on research has helped India to emerge as a potential exporter of foodgrains; only five years ago the country imported food worth about Rs. 5320 million. India's crop resources are estimated now to account for nearly 50 per cent of the gross national product and 40 per cent of total export earnings.

The rapid increase in food production was brought about by research in "genetic" breeding agronomy, pesticides and fertilizers. Indian scientists developed high yielding varieties of crop through "genetic" breeding usually by importing seeds from abroad. Once the right plant types were identified, efforts to maximise yield were undertaken through the development of suitable agronomic practices. At the same time the scientists also developed effective pesticides and carried out research on plant nutrition for determining the amount and type of fertiliser for each of the high yielding crops.

The breeding technique produced high yielding crops such as highbrids of jowar, bajra, dwarf wheat and dwarf rice-all of which helped to usher in Green Revolution in India. When the scientists found that the high yielding crops had greater pest problems, they came out with special varieties of wheat that are 'rust' resistant and rice that cannot be attacked by the notorious 'tungro' virus.

In the last twentyfive years the scientists of ICAR have put in commendable work in the field of short duration high yielding and pest resistant crops. More importantly, Indian farmers were convinced of the new technology in the making and hence the utilisation of the results of research. Progress in research also promised two other developments, namely, multiple cropping and dry land farming which would be of significance for future development.

NEW METAL TESTER DEVELOPED

An instrument called Eddy current tester for non-destructive testing of metals was developed by the Indian Institute of Technology, Bombay (ITI).

The developed tester is useful in testing hardness, tension strength, impact strength, carbon content, alloy type and heat treatment conditions of tools and machine parts made of almost all kinds of metals.

In the conventional method of testing metals, there usually occurs destruction of metals to be tested and wastage of time. All this can be avoided by using the new developed tester. With this new instrument, testing of any metal takes only a few seconds and this enables to test every item. In the conventional tester testing of metal is done mostly by random sampling.

The developed tester, if produced on commercial scale indigenously can be sold at much cheaper rate than the similar tester manufactured abroad.

The Institute has also developed a fluidic artificial respiration system for the first time in the country. The fluidic technology was introduced in India for the first time in 1967 at the I.T.I., Bombay.

IRON POWDER FROM MILLSCALE

A procoss to prepare iron powder by reduction of millscale has been developed by the Central Electrochemical Research Institute (CERI) Karaikudi, Tamilnadu.

In this process millscale is kept as a sediment in alkaline electrolyte by a suitable cathode substrate. The insoluble anode could be immersed in the free elelctrolyte above the sediment of the oxide. This method has a definite advantage in that a homogenous solution need not be prepared and large quantities of raw material can be directly reduced in unit cells with high amperage capacity. The particle size of the powder can be controlled by controlling the particle ore of the starting material.

Iron powder is commonly used in the production of welding electrodes and in flame cutting sintered metal components.

LINOLIN FROM CRUDE WOOL GREASE

Refined wool grease which is generally called linolin is used for many purposes such as metal lubricant, cosmetics, lube oil additive, pharmaceuticals, in adhesive tapes, in soaps and paints etc. Irrespective of several processes available for preperation of linolin from wool grease, a new process for the same has been developed by the Indian Institute of Petroleum, Dehradun.

The new process consists of contacting crude wool grease with absorbent in a definite ratio at certain temperature and the mixture thus obtained is aged for several hours, at temperature above its melting point before subjecting to extraction with an aromatic solvent at room temperature followed by filteration and removal of solvent by distillation. Distillation is carried out in such a way that bottom temperature does not exceed 150°C.

By employing the new process many advantages can be derived. By using better single absorbent, better grade of linolin can be obtained. Extraction with solvent at room temperature is adequate. Only 2 chemicals (absorbent and solvent) are involved in the whole process. Besides, decolourisation and deodorisation are accomplished in the same step. Acid value is reduced to a greater extent and no nutrilisation with alkalies is required. In addtion to this, any crude wool grease irrespective of the method of scouring can be used. Further it is not necessary to disorb linolin from the grease absorbent complex before solvent extraction. In this process recovery is very good.

AIRCONDITIONING AND REFRIGERATION INDUSTRY

A REVIEW

Though of recent origin, the airconditioning and refrigeration industry in India has made rapid progress. Until 1962, the industry was engaged primarily in the assembly of imported parts and components. Today, the technical expertise attained by the industry is comparable even to the advanced countries of the world. Several new types and ranges of equipment are being mannfactured in the line to make the country self-sufficient.

In the manufacture of domestic refrigerators and airconditioners there are 10 major units engaged. Of these six units are devoted to the manufacture of domestic refrigerators. Their annual production capacity was of the order of 108,300 numbers. From a meagre output of only 750 numbers way back in 1955-56, the output rose to 11,700 numbers in 1960-61, 30,575 numbers in 1965-66 and 65,400 numbers in 1970. The production is expccted to have reached an all time high of 87,000 numbers in 1971.

The domestic refrigerator industry in the country is fully developed and most of the parts like compressors, conductors, high density polyesterene sheets, etc. that were imported till 1962 are now available indigenously in sufficient quantities. The import content is only about Rs. 50 per refrigerator excluding a few steel items.

The room airconditioner sector has an installed capacity of an estimated 28,300 numbers. The actual production in 1971 was recorded at 21,600 numbers as against 20,000 numbers in the preceding year.

In the industrial airconditioning and refrigeration equipment, certain interesting developments have taken place recently. For instance, centrifugal packaged chillers were manufactured for the first time in India during 1971. In the manufacture of sealed compressors, advance has been registered in the production of various ranges for a variety of end-uses, such as, freezers, room airconditioners of 2 – 2.5 tonnes capacity, water coolers, commercial refrigerators, etc. India is self-sufficient in refrigeration equipment for cold storage, iceplant, fish storage, etc.

The installed capacity for the manufacture of industrial refrigeration and airconditioning equipment is of the order of Rs. 160 million; the actual production was recorded at Rs. 112 million in 1971.

The production of certain types of airconditioning and refrigeration controls has also increased resulting in foreign exchange saving by way of import substitution of about Rs. 1.5 million per year. For example, the evaporators that were being manufactured out of steel sheets and copper sheets earlier are now manufactured with aluminium sheets. Again, copper tubes in the

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evaporators have been substituted with aluminium tubes by most of the domestic manufacturers.

Cooling towers is another area of growth. With three units engaged in this area, the licensed capacity is about Rs. 15 million per year. The actual production, more or less, matches the capacity. Used exclusively in chemical fertilizers and steel plants the products of the tower industry have come to be adequately diversified.

In respect of airconditioning and refrigeration equipment industry, sufficient capacities have been established for dry batteries, carbon rods and storage batteries. Diversified type of equipment in the field of air control technology is also being manufactured by various firms. Even in the production of specialised fans and blowers as also industrial cooling towers, the country is becoming self-sufficient. The production levels for industrial cooling towers and sealed compressors were Rs. 17.7 million and 32,200 numbers against the installed capacities of Rs. 15 million and 65,600 numbers respectively.

Alongside a marked increase in the output, the industry entered in the export field also. During 1971-72, export of airconditioners, refrigerators, water coolers, ice machinery, and refrigeration plants was estimated to have netted foreign exchange worth Rs. 9 million as against Rs. 6.13 million in the preceding year. In fact, it is interesting to know that from a small figure of Rs. 305,000 in 1960-61, the industry's export earnings increased several fold over the years. Nigeria, Thailand and Sri Lanka were the major markets for Indian refrigerators and airconditioning equipment. Indian refrigerators and parts reached a number of other markets also including U.S.S.R., Australia, Iran, Zambia Sudan and Qatar during 1971-72.

In the field of export of technical expertise too, the industry did not lag behind. A Bombay film has secured a major turnkey order for airconditioding of a textile mill in Malaysia. Already two joint ventures in Nigeria and Sri Lanka are under rapid progress with Indian collaboration. ☐

Attention

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BICYCLES ON EXPORT STREAM

Among India's engineering industries, bicycle industry is well established. The country occupies today fifth place among the bicycle producing countries of the world. The export of bicycles, parts and accessories during 1971-72 amounted to about Rs. 80 million as against Rs. 70.67 million during the preceding year, registering about 15 per cent increase.

The constantly rising trend in bicycle exports indicates overseas awareness of the standard of this item and the technical expertise and skill achieved by the Indian manufacturers in the production field. Today Indian bicycles find markets not only among developing countries, but also in the industrially advanced markets such as USA, UK, Yugoslavia, Denmark, Japan and Federal Republic of Germany.

During 1971-72, the major destinations for the Indian bicycles included Nigeria, Iran, Indonesia, Iraq, Zambia, USA and Singapore. For Bicycle parts and accessories, UK, Yugoslavia, Belgium, USA, Federal Republic of Germany, Japan, Denmark and Belgium emerged as the principal markets.

Besides physical exports, India has lately entered the field of technological exports also. The Indian bicycle industry is in a position to export technical know-how for the manufacture of bicycles.

M/s. Hind Cycles Ltd., Birlagram, Nagda, Madhya Pradesh, a leading manufacturer of bicycles and bicycle parts in India, have succeeded in exporting about 38,640 complete bicycles at a value of Rs. 4.8 million during 1971-72. They have been able to secure recently a contract for the supply of 60,000 bicycles from a prominent firm in U.S.A. In addition to this, they have secured orders from Indonesia for supplying 82,000 bicycles. The Nagda firm's manufacturing capacity is of the order of 200,000 numbers per annum. They have set up another plant at Kandivli, Bombay for the manufacture of bicycle chains.

One more prominent firm in the line M/s. Roadstar Industries of India, Rajpura, Punjab had secured an export order for the supply of bicycles to the United States valued at $ 1 million (please refer to the success story on pages 2 & 3 of this Weekly, Vol. II No. 39, September 23, '72).

Overseas confidence in the Indian bicycle has been made possible with the introduction of compulsory quality control and pre-shipment inspection in the area since February 1968. Unless accompanied by a certificate of inspection issued by an authorised Export Inspection Agency, no consignment of bicycles or parts is allowed to be exported. Emphasis is laid on the levels of in-process quality control at different stages of manufacture-from the raw material stage to the finished product. The raw material and boughtout components control is effected by registering the manufacturing units to use only properly inspected and tested materials. For systematic process control, detailed process specifications for forging, brazing, machining, electropleting, painting, heat treatment etc. are laid down. The manufacturers ought to have adequate equipment gauges and instrumentation facilities to control the process as laid down in the process specifications. For testing the finished product, the manufacturer should have proper testing facilities to test the product as per stipulated specifications. The various load tests and performance tests to be conducted for bicycle parts together with their scale of sampling have also been specified. Finally, packing is required to be elected for its appearance, drop tests, waited spraying test and rolling test, to safeguard. The Product against adverse effect of storage and transit in different weather conditions.

OVERSEAS SALES OF DRIED MUSHROOMS

Switzerland is India's major maryet for dehydrated mushrooms. The country's export earning from the product was Rs. 3.23 million in 1970-71 of which the intake of Switzerland was Rs. 1.20 million. In 1971-72 (first eleven months), the product fetched Rs. 2.72 million and the Swiss share was Rs. 1.24 million. The other important markets are France, German Democratic and Federal Republics, Nepal and U.S.A. Bulgaria, Norway and U.K. have also imported substantial quantities in 1971-72.

Recently a Delhi firm, M/s. J. Shambunath and Company secured orders worth Rs. 1.7 million for supply of dry mushrooms from Switzerland, France and German Federal Republic. The firm has already started the supply by air in instalments. The entire export order is to be executed by November this year.

India's export trade in vegetable roots and tubers was the order of Rs. 13.88 million in the first eleven months of 1971-72 while it was Rs. 16.22 million in the full year of 1970-71. Apart from mushrooms, the other items of dehydrated vegetable exports include garlic powder, mango and potato products, tapioca products etc. as also vegetable preparations like mango chutney and other pickles.

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ALUMINIUM CONDUCTORS ON EXPORT STREAM

A sizeable quantity of hard drawn bare aluminium conductors (ACSR) is supplied by the Indian industry to foreign markets every year. In 1970-71, 6.19 million kg. worth at Rs. 26.61 million was supplied mainly to Yugoslavia (Rs. 3.44 million), U.S S.R. (Rs. 6 million), Iran (Rs. 4.8 million), Sudan (Rs. 3.38 million), Yugoslavia (Rs. 3.44 million), Arab Republic of Egypt (Rs. 2.4 million) and Thailand (Rs. 2.14 million). In the first eleven months of 1971-72, the conductors fetched Rs. 22.60 million (4.82 million kg.) U.S.S.R. was again the major market at an import value of Rs. 10.79 million followed by Iran (Rs. 6.9 million), Yugoslavia (Rs. 1.37 million) and Singapore (Rs. 1.24 million). Among other importers were Ceylon, Gambia, German Democratic Republic, Kenya, Mauritius, Netherlands, Philippines, Sudan, Singapore and the Arab Republic of Egypt.

M/s. Jaipur Metals and Electricals received several export orders for ACSR conductors in the face of keen global competition. With the domestic market for these products showing signs of revival after an experience of slump during the past few years, the company secured orders from various public sector undertakings within India too.

The firm is also developing overseas markets for electric meters abroad. They have started commercial production of polyphase meters, sizeable orders for which were also bagged. The company has plans to diversify manufacture in other fields including electrical stampings and laminates.

QUALITY SEEDS FOR EXPORT

Apart from the export seeds used for spices, cereals, pulses, oil seeds as also oil nuts for use in purfumery and pharmacy, India exports a variety of seeds for planting. The exports of vegetable seeds include cauliflowers seeds, onion seeds, pea seeds, radish seeds and other vegetable seeds like psyclium seeds, nux vomica seeds and tamarind seeds.

The National Seeds Corporation, New Delhi succeeded in exporting high quality seeds of wheat, bajra, maize, jute, paddy, vegetables and flowers worth Rs. 1.82 million during 1971-72. Their markets are mainly in Asia and Europe. The Corporation hopes to export upto Rs. 6 million in 1972-73.

To meet the growing demand for hybrid Indian seeds abroad and to fully meet the increasing internal demand, the Corporation is expanding its seed production programme. Not only the seed output is to be increase several fold but new facilities are sought to be created for seed processing, storage, seed testing and training facilities in the field.

INDIA'S PARTICIPATION AT BERLIN FAIR

A wide range of finished products made in India were exhibited at the Tenth Overseas Import Fair, "Partners in Progress" held in Berlin during August this year. The products have generated good interest among the visitors to the Fair.

Among the participating Indian firms, M/s. Sonodyne Corporation, 7 Sourin Roy Road, Calcutta-34, exhibited stereo amplifier, loudspeakers, battery eliminators. The display of these products reveal that they can compare technically and price-wise favourably with those from other countries such as Japan and Hongkong. It was gathered that necessary product adaptation for the Indian supplies would be possible.

Among the other Indian participants, the firm that displayed ladies' garments, received good response and they were able to book substantial orders. It was also found that the typical Indian look was in demand for items like leather garments, cotton blouses, silk ties, handicrafts, mango juice and sea foods.

The display of Indian products included semi-precious stones such as necklaces, bracelets, belts, cuff-links, ash trays, agate key chains, leather articles such as bags, belts, bikini set etc. These were exhibited by M/s. Navratan Trading Co. Pvt Ltd., 5, Yashwant Place, New Delhi-21. M/s. M. M. Bilaney & Co., 140, Medows Street, Fort, Bombay-1 (BR) displayed Maharani sandalwood soaps, Kolhapuri chappals, shrimps, mango juice, mango pulp, and textiles such as bed sheets, bed covers and pillow covers. The other

Bombay firms namely, M/s. Metropolitan Trading Co., 10/76, Hains Road, Bombay-18 WB and M/s. W. H. Deeth Pvt. Ltd., 132, Dr. Annie Besant Road, Worli, Bombay-18 displayed zodiac neck-ties, shirts and handwoven woollen carpets, fashion garments respectively. M/s. S. K. Sen & Sons P. Ltd., 1, Middleton Street, Calcutta-16 displayed handloom silks, garments and leatherware while M/s. Geep Flashlight Industries Ltd., 28, South Road, Allahabad exhibited torches, dry cells and miniature bulbs.

EXPORT PERFORMANCE AND POTENTIAL

EXPORT OF TECHNICAL CONSULTANCY SERVICES

Recent years have witnessed progress in India's capability of supplying abroad technical consultancy services. A number of consultancy units in India today offer a wide range of services in many fields of importance to a developing economy like India. Some of the consultancy firms have the benefit of collaboration with reputed consultancy firms abroad.

The types of services that the Indian consultants are equipped ro undertake include market survey, feasibility studies and preparation of project reports; techno-economic surveys; planning and preparation of detailed designs and specifications for plant and equipment; assessment of bids and recommendations of equipment selection; project engineering and fabrication; supervision of construction and commissioning; management consultancy and evaluation of projects and methods.

Set up to function as a consortium of the leading government enterprises, M/s. Engineering Projects India Ltd. (EPIL), Himalaya House, Kasturba Gandhi Road, New Delhi-1, undertakes to execute complete plant/project on turnkey basis. It can undartake the entire contract relating to a new project from feasibility reports to actual manufacturing of plant and machinery at factories of its member-companies as also the erection and commissioning of the plant.

M/s. Engineers India Limited, 4, Parliament Street New Delhi-1 is experienced in offering technical consultancy services in various engineering disciplines and is able to provide a complete range of these services from the prepartion of feasibility reports to construction, supervision and commissioning. Apart from providing services to big projects within the country, the organisation has also been trying in enter international markets and has already succeeded in executing some work in the Shiraz Refinery in Iran. It has also tendered for setting up refineries in Burma, Yemen, Jordan and Kenya.

The National Industrial Development Corporation Limited, Chanakya Bhavan, NDMC Complex, Vinay Marg, New Delhi-21, offers a wide spectrum of industrial and management consultancy services as also economic development services from evaluation of regional development industry oriented programmes through feasibility reports, detailed engineering, project management, etc. all the way up to commissioning and start-up of plants. The management consultancy services offered by the Corporation include package services for modernisation and revitalisation of existing industrial projects, particularly in the field of engineering industries. Besides a large number of projects serviced in India, the Corporation succeeded in executing the work in the field of industrial planning, project engineering and turnkey consultancy for industrial projects in many developing countries such as Iran, Libya, Nepal, Sri Lanka, Kenya, South Yemen on behalf of the United Nations Industrial Development Organisation and foreign governments.

Established as a subsidiary of the State Trading Corporation of India for the development of exports of engineering goods, railway equipment etc., the Projects and Equipment Corporation of India Ltd., Chandralok, 36, Janpath, New Delhi is also equipped to undertake turnkey contracts involving planning, design and engineering supply, erection and commissioning of the railway and industrial projects in various engineering fields. The Corporation undertakes jobs in fields including railway lines construction, signalling systems, railway workshops, general engineering industrial, fertiliser and chemical plants, ferrous and non-ferrous metallurgical plants, processing plants such as sugar plants, tea plants, pulp and paper plants, cement plants, crushing and grinding mills etc; drugs and pharmaceuticals, civil engineering and structurals, petroleum refinery, power generation, distribution and transmission and water resources, irrigation and flood control. The development of technical consultancy agencies in the private and public sectors in India has promoted progress of technical education. There are nearly 150 engineering and technological colleges in the country and having facilities of teaching about 25,000 students every year. Besides, there are 300 technical institutions for diploma courses with facilities for admitting about 50,000 students per year.

RECENT TRENDS IN INDO-U.K. TRADE

In the first half of 1972, U.K.'s import trade from India has registered increase, especially in textile yarns and fabrics, textile fibres and waste, leather and leather manufactures, crude animal and vegetable materials.

Tea exports to U.K. have brightened in recent months. Indian Tea Board's display at the Lord's Cricket Ground in the recent match between England and Australia generated good interest. The Board's success in joint sales promotion with M/s. J. Lyons and M/s. Brooke Bond created interest in M/s. Typhoo also, "who are always shy of any association whatsover with the countries of origin". A new television film on "Quick Brew Indian Blend" is being shown at stations including London, Southern, Midlands, Westward, Lancashire and Yorkshire. Indian Tea Centre in London continues to attract a number of customers.

In respect of jute, Bangladesh is offering lower prices than India. This is due to stock-pile of goods accumulated with that country before the Indo-Pak conflict. Sooner or later, the price of goods from these two suppliers should come more or less in line. The U.K. Government's policy is to work towards free trade in jute goods (i.e. removel of the 20 per cent import duty imposed by European Economic Community), as it would help U.K. to solve unemployment problem as jute remains a source of work. E.E.C. is reported to be appreciative of the U.K.'s view. The enlarged Community, to run from January 1973, is likely to negotiate new agrrements with India and Bangladesh. As there will be separate agreements with these countries, the amount of jute imports approved on U.K.'s global quotas will be divided between the two supplying sources. As regards tariff, there are forces in the E.E.C. to retain it on jute, but the European Association for the Trade in Jute Products is keen on its elimination. Also jute textiles are included by both U.K.'s and E.E.C.'s offers under the Generalised Scheme of Preferences (GSP), but the latter have yet to implement their offer on jute.

U.K.'s import statistics for the first half of the current calendar year (1972) indicate that India's share in the total U.K. imports of non-electric and electric machinery constitute only a meagre portion (0.1 per cent.) The statistics also indicate that while the share of Commonwealth countries in total U.K. imports is sizeable, India's share is not yet so. For instance, Commonwealth's share for machinery (other than electric) was over 4 per cent in the total U.K. imports in that category, but Indian share was only about 0.15 per cent. Likewise, the Commonwealth exports of electric machinery, apparatus and appliances amounted to 8 per cent of the total U.K. imports while Indian share was only 0.25 per cent. These figures indicate that there is sufficient elbow room for India to increase her share of U.K.'s imports. Among the items that are identified as having growth potentialities for India in the U.K.'s market are office machinery, auto parts, radios and parts, hand tools and small tools like spanners, files, wrenches, scissors, taps and vices, dies, etc.; stainless steel utensils, internal combustion engines, jet and gas turbines, grey iron and malleable iron castings in rough state, forgings of all types, M.S. tubes, pipes and their fitting; cast iron tubes and pipes, industrial fastners like nuts, bolts and screws of iron and steel, taps, corks, valves, etc.; electronic components like metal carbon film resistors, electronic and steroflex capacitors, transistors and wire wound potentio meters; electric measuring and controlling instruments, machine tools and bicycles and parts. Pursuant to the participation of M/s. Hindustan Machine Tools, Bangalore, in the Machine Tool International Fair held in Olympia, a big firm in U.K. is negotiating with India a contract involving the letting of H.M.T.'s manufacturing licence. It will, indeed, be a significant achievement for India to sell wholly indigenous technical licence to the U.K. firm for an advanced engineering product like machine tools.

India continues to make steady increase in her exports of coffee into the U.K. During January - May

1972 about 710 tonnes of coffee at a value of £ 214,000 were exported which almost equal the total import of coffee from India for the entire year of 1971. In case of import of tobacco also, India's recent performance has been satisfactory. As against an import of 7,4 million lbs. with a value of £ 2.38 million for the same period, the import from India in 1972 in the corresponding period was 9.40 million lbs. with a value of £ 2.63 million.

While exports of non-fabricated mica to the U.K. market were somewhat affected in the immediate wake of canalisation through Minerals and Metals Trading Corporation of India Ltd., India's export of manufactured mica has witnessed encouraging improvement. U.K.'s imports from India of raw hides, skins and fur skins in the first 5 months of 1972 represented an increase of 22 per cent over those in the corresponding period last year. In fact, raw fur skins accounted for 90 per cent of the total supply from India in that period. Indian exports of leathers, leather manufactures and dressed fur skins also rose by about 27 per cent and accounted for nearly 28 per cent of the total U.K. imports in the period. The major categories of leather imported by U.K. in which India figures prominently relate to calf leather, bovine leather, sheep skins and goat and kid skins.

Despite strong competition from other countries like Hong Kong, U.K.'s interest in Indian handicrafts sustains. The Indian High Commission in the U.K. have been receiving enquiries, particularly for ladies' gloves and costume jewellery.

FOREIGN INTEREST IN ELECTRONICS PROJECT

Thirty-two international electronic companies including giants like International Telegraphs and Telephones and AEG-Telefunken have expressed interest in participating in the Santa Cruz Airport Electronics Project in the form of joint ventures or marketing arrangements.

Four specific proposals aimed at generating exports worth $ 13.8 million a year have already been processed by the Trade Development Authority which is the sponsoring agency of the Airport Project. Another hundred twenty applications have been received from Indian companies many of which are willing to go in for export-oriented production with their own know-how thus underscoring technical competence achieved by many manufacturers in this field.

A delegation sent abroad last year, jointly sponsored by T.D.A. and the Department of Electronics has estimated that within four years India can export no less than $ 100 million worth of electronic equipment most of it from the Santa Cruz Project. The products identified for production in the bonded processing zone at the airport include radios, television sets, (including colour television), tape recorders, desk calculators, computer parts communication equipment and micro wave components.

The airport scheme is to give employment to fifty thousand people when it becomes fully operational.

As a result of the Delegation's visit, personal contacts have been established with 160 foreign companies mostly in Japan, U.S.A., U.K., West Germany and France. A total of seventysix marketing outlets both in the Far East and North Atlantic have been identified.

India's exports of electronic equipment are at present only $ 4 million a year and much of this due to the export obligation imposed on two computer firms viz. IBM and ICL. Hence the export-oriented production remains a largely unexplored territory and it is therefore encouraging that so many applications have been received for putting factories in the bonded duty free zone near Santa Cruz.

UPTREND IN EXPORT OF CASHEW KERNEL

Indian exports of cashew kernel increased sharply by Rs. 37.8 million during the first five months of 1972-73 (April-August 72) over the exports during the corresponding period of the preceding year. The export value during the Five months period of 1972-73 (April - August 72) was recorded at Rs. 436 million as against Rs. 398.2 million during the comparable period of 1971-72. In terms of quantity too the exports rose to

42045 tonnes from 39181 tonnes during the periods under review of 1972-73 and 1971-72.

During the five months period of 1972-73 (April-August 72) the exports were mainly directed to the U.S.S.R., U.S.A., Canada, U.K., German Democratic Republic, Japan and Australia.

The foreign exchange earnings from the exports of **cashew nut shell liquid were of the order of Rs. 3.84 million (3324 tonnes).** The prominent buyers included U.K., Japan, Korea Republic and the U.S.A. During 1971-72, the export value of this item was Rs. 7.86 million. U.K. emerged as a prominent buyer whose intake was of the order of 3083 tonnes valued at Rs. 3.45 million.

India is the leading exporter of cashew kernel among the cashew kernal exporting countries of the world. In fact, constant uptrend was witnessed in the export of cashew kernel during the past years. During 1971-72 the exports of cashew kernel from India increased sharply by about 20 per cent as compared to 1970-71. The foreign exchange earning was recorded as much as Rs. 620 million in 1971-72 as against Rs. 521 million during 1970-71.

The major importing countries during 1971-72 were U.S.A., U.S.S.R., Canada, U. K., Japan, Netherlands, Hong Kong, Czechoslovakia and Federal Republic of Germany.

The total area under cashew kernel cultivation in India is estimated to be about 500,000 hectares. The annual average yield of cashew nuts is between 150,000 to 160,000 tonnes. There are about 200 cashew nut processing factorier in India and most of these concentrated in Kerala, Mysore. Tamil Nadu, Goa and Andhra Pradesh.

BOOST IN TOBACCO EXPORTS

India's exports of unmanufatured tobacco during the first five months of 1972-73 (April-August 72) recorded improvement of 6.61 million kg. in terms of quantity and Rs. 63.75 million in terms of value over the export performance during the comparable period of the preceding year. Quantumwise the increase was more than 15 per cent while valuewise it was about 21 per cent. During the period, the foreign exchange earnings were as much as Rs. 362.76 million as compared to Rs. 299 million in the same period of preceding year.

During the first 11 months of 1971-72 (April 71-February 72) the export value was of the order of Rs. 391.31 million (52.05 million kg.). USSR emerged as the major buyer of Indian unmanufactured tobacco.

Indian tobacco is exported to more than 50 countries in the world. During 1970-71 exports were of the order of Rs. 314 million (47.5 million kg.). In the years 1968-69 and 1969-70 the exports were at Rs. 331.6 million (52.7 million kg.) and Rs. 327.6 million (54.3 million kg.).

Regionwise, during the first five months of 1972-73, Eastern Europe accounted for a major share at a value of Rs. 171.41 million (20.27 million kg.). In this region, USSR again emerged as the principal buyer whose intake was as much as Rs. 150.25 million (16.95 million kg.). The second major buyer was Czechoslovakia whose intake was worth Rs. 14.80 million (1.6 million kg.). In the comparable period of the preceding year USSR's imports were worth Rs. 105.38 million (13.55 million kg.).

During the period, United Kingdom was the second biggest importer of Indian unmanufactured tobacco. Its total intake was recorded at Rs. 105.97 million (10.79 million kg.). In the comparable period of the previous year, it imported unmanufactured tobacco worth Rs. 124.69 million (14.50 million kg.).

South and South East Asia was another region which absorbed unmanufactured tobacco valued at Rs. 64.94 million (8.99 million kg.). Japan was the main importing country at a value of Rs. 42.78 million (4.2 million kg.), followed by Bangladesh at Rs. 19.73 million (4.49 million kg.). Singapore and Indonesia etc., were the other important buyers.

In Western Europe, Irish Republic was the main destination accounting for Rs. 9.37 million (0.79 million kg.) followed by Netherlands at Rs. 1.38 million (0.41 million kg.), Belgium at Rs. 1.32 million (0.12 million kg.). Besides, France and some other West European countries were the other prominent destinations during this period of five months.

Congo Republic, Libya, Nigeria, Somalia etc. were the important importing countries in the Africa Region. Libya was the main buyer in this region whose intake was valued at Rs. 2.74 million (0.26 million kg.). The other prominent destinations were Somalia, Congo Republic and some other countries in the African continent. In the Middle East region, South Yemen Republic, Saudi Arabia, Yemen Arab Republic, Kuwait etc. were the prominent markets.

A wide variety of tobacco is produced in the country including flue cured verginia for cigarettes, white Burley Natu, Turkish tobacco, Sun cured country Natu tobacco for pipe tobacco, Lanka tobacco for cheroots, Moti Hari, Jutti tobacco and Nipani tobacco for bidis. The product of unmanufactured tobacco was of the order of 338.2 million kg. during 1969-70.

RUSSIAN VENTURE IN INDIA'S PRIVATE SECTOR

The seventyfirst joint venture with Soviet assistance in India in the field of technical collaboration will be with a private enterprise in India. A group of middle entrepreneurs and technocrats in India have floated a public limited company, namely, Insov Auto Limited with Soviet technical collaboration. The project proposes to manufacture light vehicles of 1.0 to 1.5 ton and 3.0 to 3.5 ton capacity These vehicles which are designed for carrying agricultural products and food-grains are expected to roll out of the assembly lines by end of 1973.

It is envisaged that the quantum of import for manufactured items in the joint-firm will go down only to 5 per cent by 1978 and the capacity of production to 12000 vehicles per year would be achieved. The Soviet Union has agreed in order to assist India's economic growth to supply modern plant and machinery and components of vehicles on long term deferred payment basis at low rate of interest. Besides rendering technical know-how and assisting in production control as also training Indian engineers and skilled operators in the Soviet Union, the collaborators have also agreed to prepare detailed project reports. They will also set up research and development units for automobile industry.

SWISS INTEREST IN INDIAN DISPLAY

Talking at the Sausanne Fair in Switzerland where India is participating, the President of the Fair, appreciated India's textiles and evinced keen interest in Indian handicrafts, textiles and jewellery. He also applauded India on her Industrial progress as can be noticed from the Indian wares at the pavilion.

He said that India is a great Asian nation. He described the country as having the face of new features which stresses the expansion of her industries, the mechanization of her agriculture, the development of gigantic communication etc. At the same time the charming face of India of thousand years continues to be conured up by her artistic treasures, traditional products and worship her spiritual values.

ENQUIRIES FOR INDIAN JET FIGHTERS

India-made jet fighter 'gnat' and jet training aircraft 'kiran' received a good reception at the recent Farnborough Air Festival in U.K. Several enquiries were made by intending purchasers.

The Hindustan Aeronautics Limited, Bangalore, participated in the international show for the firt time. At the air display Indian aircraft was given priority.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

PROGRESS IN FURNACE INDUSTRY

With the constant rise in indigenous production, the import bill of India's furnace industry has been reduced to minimum. The industry's production was almost insignificant in the first five-year plan period. Even during the following plan, the production was none too adequate. In 1964-65, the output was of the order of Rs. 18.12 million which was only in respect of melting furnaces as there was no production of other heat treatment furnaces. In 1970-71 the total production was valued at Rs. 46.16 million of which the share of melting furnace was Rs. 15.47 million and that of other heat treatment furnaces was Rs. 30.70 million. In the import context, the year 1964-65 witnessed an out drain of foreign exchange to the tune of Rs. 12.80 million for the import of electric furnaces for melting. In 1970-71 the total imports amounted only to Rs. 7.80 million of which those for electric furnaces for melting were Rs. 2.41 million while the import of industrial laboratory furnaces and ovens was Rs. 4.57 million, that of electric furnaces for heating Rs. 0.44 million and electric induction dielectric heating furnaces Rs. 0.38 million.

The furnace industry in India has an estimated production of Rs. 6 million in 1971-72. It has planned a production of Rs. 75 million during 1972-73 and of Rs. 90 million by 1973-74.

The industry covers a wide range of products. It is technically capable of handling arc melting furnaces up to 40 tonnes capacity on the electric melting side. It is well established for such of the furnaces up to 10 tonnes capacity and the import content is nominal being not more than 8-10 per cent. The mains frequency induction melting furnaces are also manufactured in the country with a low import content of not more than 15 per cent and the industry has been able to already cover sizes upto 10 to 12.5 tonnes. In respect of medium frequency induction melting furnaces the capacity covered by the industry is upto 5 tonnes; the import content is still rather high at 25 to 30 per cent due to the necessity for importing induction coils and frequency convertors.

While such is the progress in respect of electric furnaces indigenous manufacturing capacity has come to stay in several areas like oil fired furnances for non-ferrous meltings and specialised rotary furnaces for cast iron melting. As for heat treatment furnaces, the industry can supply a wide range. Steel Plant furnaces including soaking pits, billet reheating furnaces and so on can also be supplied from indigenous sources.

No doubt, there are still some gaps to be filled in by India's furnace industry. For instance, the manufacturing capability of the furnace industry is not yet able to keep pace with the programmes for new capacity of steel manufacture that has been planned. Again in the field of sophisticated high value furnaces for heat treatment purposes used in engineering industry, indigenous manufacturers are yet to develop capability to meet the specific requirements of customers and delivery schedules. These gaps are sought to be filled in soon.

POWER GENERATING EQUIPMENT AND PUBLIC SECTOR

The major items of power generating equipment, namely, water turbines and generators and steam turbines and generators are mainly manufactured by two public sector units, namely, M/s. Heavy Electricals India Limited, Bhopal, and Bharat Heavy Electricals Limited, Hyderabad and Hardwar.

The Bhopal project is designed to produce water turbines and generators of the sizes required in the country. The unit is also designed to produce steam turbines and generators for ratings up to 120 MW. Also the manufacture of steam turbines up to 235 MW for nuclear power station has been taken up by this unit.

The Hyderabad unit of BHEL is desiged to produce mainly steam turbines and generators mostly to 110 - MW ratings. Additionally, production of smaller generating sets needed for sugar plants and chemical plants has also been taken by this unit. They have achieved progress in the output of turbo compressors and turbo blowers for fertilizers and steel plants. The Hardwar unit of BHEL is to manufacture both water and steam turbines and generators. They produce steam turbines and generators upto 200 MW ratings at present.

EXPANSION PLANS FOR POWER BOILERS

For meeting the rising needs of power generating equipment during the Fifth Five Year Plan period (1974-75), M/s. Bharat Heavy Electricals Limited (BHEL) have plans to improve power boiler output, to suit a capacity equal to 2500 MW annually of thermal generation from 1100 MW now. The expansion scheme would involve an additional investment of Rs. 121.20 million over the existing facilities.

The high pressure boiler plant of BHEL, Tiruchirapalli was designed for the manufacture of 300 tonnes of boiler house and associated equipment which is equivalent to an annual additional thermal power of about 750 MW. The plant has been in operation since 1966 and succeeded by now in reaching the rated capacity in many areas of production. During Fourth Five-Year Plan, the capacity of the plant has been expanded to 1100 MW per year.

FIRST BLAST FURNACE COMPLEX OF BOKARO

The first blast furnance complex of Bokaro Steel Plant is to be inaugurated by the Prime Minister of India on October 3, 1972. Bokaro, which is the fourth integrated steel plant to be built in the public sector, is the biggest industrial project so for undertaken in India both in terms of investment and output. With the commissioning of the first blast furnace complex, other units like the sintering plant, coke ovens, thermal plant, gas producing plant and conveyor systems for raw materials will all come into operation fully.

The next phase of Bokaro will be in the middle of next year when the 1.7 million tonne stage will be commissioned. At that stage, the capacity for production will be 1.7 million tonnes of steel ingots and over 800,000 tonnes of pig iron per year. Approximately 80 per cent of the earth work, 75 per cent of the concrete and structural steel work and 65 per cent of the equipment erection required for the 4 million tonne stage is also expected to be completed by then.

Bokaro is a milestone in India's quest for self-reliance. Whereas the three earlier steel plants in the public sector were, in a sense, "turn-key" projects built almost entirely with imported equipment, technological structures and refractories, Bokaro can be called India's first "Swadeshi" (indigenous) steel plant. Besides the participation of Indian organisations in design and engineering of the project in a significant way, about 90 per cent of steel structures, 65 per cent of mechnical equipment, 48 per cent of electrical equipment, 80 per cent of instrumentation and 37 per cent of refractories for the first stage are being made in the country. Public sector undertakings like the Heavy Engineering Corporation, Ranchi, the Mining and Allied Machinery Corporation, Durgapur, the Garden Reach Workshops, Calcutta, the Bharat Heavy Plate and Vessels Unit and the Bharat Heavy Electricals Ltd. and a number of private sector organisations are involved in this massive programme of indigenous production. The entire civil engineering work, fabrication of about 60 per cent of the steel structures, erection of all steel structures as well as some equipment has been undertaken by another public sector undertaking, Hindustan Steelworks Construction Ltd. Apart from savings in foreign exchange, this has acted as a catalyst to engineering and refractories industries in the country. With the experience gained in the construction of the first stage, greater reliance can be placed on indigenous manufacturing capacities in the expansion stage.

Bokaro is also an important land-mark in Indo-Soviet Co-operation in the economic and technical fields. The Soviet Government has given a long-term credit of 200 million roubles for the construction of the steel plant for the first stage. A further credit of 85 million roubles has been extended by the Soviet Government for the second stage of the Plant.

AGRICULTURAL INCOME IMPROVES

India's agricultural income during the last decade improved from Rs. 58,920 million in 1960-61 to Rs. 141,970 million in 1970-71. This represents an increase of 142.6 per cent, as compared to increase in national income of 137.5 per cent in same period. The highest rate of increase was recorded in the State of Punjab. The increase was by 241.2 per cent. In Haryana, improvement in farm income was 223.5 per cent while in Gujarat it was 203 per cent. The rate of increase in Rajasthan, Mysore, Orissa, Jammu & Kashmir and Kerala was more than the national average while Tamil Nadu and Uttar Pradesh increaseed their income by 140.3 and 139.4 per cent respectively. Punjab which has only 2.3 per cent of India's total rural population was able to increase its contribution to the national agricultural income from 3.2 per cent in 1960-61 to 4.6 per cent in 1970 71. In comparison, Haryana and Gujarat whose rural population is 1.9 and 4.4 per cent increased their relative shares of agricultural income from 2.3 and 5.1 per cent to 3.0

and 6.3 per cent respectively, according to a reseach study conducted by the Economic and Scientific Research Foundation. The study says that out of total number of rural households in India less than one per cent i.e. 0.9 per cent households had agricultural income of more than Rs. 20,000.

COTTON TEXTILE INDUSTRY
A REVIEW

With 18.11 million spindles and 208,000 looms installed, 379 spinning and 291 composite mills were operative in India's cotton textiles industry as on January 1, 1972.

The total cotton consumption in 1971 was of the order of 5.88 million bales as against 6.39 million bales in the preceding year. Of this, the Indian cotton content was 5.03 million bales while imported cotton content was 851,000 bales in the year 1971.

The total production of cotton yarn in 1971 was 881 million kg; in the previous year however, the production was 965 million kg. In 1971 the count-wise output of cotton yarn was substantially in favour of the fine and superfine count groups of 61-80s and above 80s. In the 1-10 count group the production was of the order of 103.53 million which constituted 11.75 per cent of the total production in 1971. In the preceding year output in this count group was 114.68 kg. accounting for 11.80 per cent of the total cotton yarn production. The countwise production and percentage share in the other groups for 1971 and 1970 were 224.33 million kg. and 25.46 per cent as against 264.49 million kg. and 27.42 per cent in respect of 11-20s; 252.88 million kg. and 28.70 per cent as against 284.05 million kg. and 29.44 per cent in respect of 21-30s; 177.16 million kg. and 20.11 per cent as against 182 million kg. and 18.87 per cent in respect of 31-40s; 73.58 million kg. and 8.35 per cent as against 73.48 million kg. and 7.62 per cent in respect of 41-60s; 27.90 million kg. and 3.17 per cent as against 37.50 million kg. and 2.84 per cent in respect of 61-80s and 21.61 kg. and 2.46 per cent as against 18.55 million kg. and 1.92 per cent in respect of count groups above 80s.

The contribution of spinning and composite mills of the total cotton yarn production was 269.37 million kg. or 30.6 per cent and 611.62 million kg. or 69.4 per cent in the year 1971 as compared to 28.72 million kg. or 29.8 per cent and 67.76 million kg. or 70.2 per cent for 1970 respectively.

During 1971 the total production of cotton cloth was 7356 million metres which represented a decline by nearly 500 million metres as compared to the output in 1970. Here again a study of mill sector cloth production during 1970-71 would reveal that the cloth production in coarse and medium B and A categories had come down while for fine and superfine categories, it has gone up. The percentage decrease in 1971 as compared to the preceding year was 13.13 for coarse cloth, 6.32 for medium B cloth and 6.06 for medium A cloth. However, the production of fine cloth improved by 12.78 per cent and that of superfine cloth by 8.05 per cent.

In the art silk sector, India's production of staple fibre in 1971 was of the order of 66,881 kg. In this category are included viscose, acetate, polyester and acrylic fibres. The output of filament yarn totalled in the year 113,212 kg. including viscose, acetate, nylon, polyster and staple fibre spun yarn. In 1970, production of man-made fibre fabrics both in the decentralised and mill-sectors was 93380 metres. In that year woollen yarn was 19570 kg. while wearable woollen fabrics were manufactured to the extent of 13,372 metres; non-wearable fabrics 4318 kg. hosiery 157 kg., wool tops 10,709 kg. and noils 1321 kg.

The per capita availablity of cloth in India rose from 10.99 metres in 1951 to 13.59 metres in 1970. While there was no per capita availability till 1957, it was 1.69 metres for man-made fibre fabrics.

MINING OPERATIONS AT AGNIGUNDALA PROJECT

Exploratory mining has been taken up at the Agnigundala Lead Copper Deposit. On the basis of the preliminary work done by the Geological Survey of India, these deposits are estimated to contain about 10 million tonnes of lead ore averaging about 6 per cent lead and about 5-7 million tonnes of copper ore averaging 1 per cent to 1.5 per cent copper

Exploratory mining has been taken up at Bandalamottu and Nallakonda two of the three blocks of the project for detailed proving of the deposits. A pilot mill for 100 tonnes per day capacity is also being set up at Bandalamottu for processing lead ore which will be produced during the course of the exploratory mining operations. The mill which is expected to go into production by the end of 1973, will also generate necessary design data for planning large scale process plants for the operational stage. At the Bandalamottu Mine, work on underground mine development and underground drilling has reached an advanced stage and exploratory mining is expected to be completed by the end of this year. At the Nallakonda Mine, the sinking of a vertical shaft has been completed and progress at the Inclined Shaft was 80 metres against the total work of 90 metres.

RECORD COTTON PRODUCTION

The All-India Final Estimate of Cotton for 1971-72 puts the year's area and production of cotton 7,783,600 hectares and 6,526,400 bales of 180 kgs. each, respectively, as against the Revised Estimate of 7,605,100 hectares and 4,498,800 bales of 180 kgs. each for 1970-71, thereby showing an increase of 178,500 hectares or 2.3 per cent in area and 2,027,600 bales or 45.1 per cent in production.

The production of cotton during 1971-72 is about 15 per cent higher than previous record of 5.67 million bales reached in 1964-65. The increase in cotton production during 1971-72 has been shared by all the major cotton growing States and is attributed partly to increase in area and partly to increase in yield due to favourable weather conditions during the year 1971-72 compared to the previous year 1970-71.

The increase in production of cotton during 1971-72 has been shared by all the major cotton growing States and is attributed partly to increase in area and partly to increase in yield due to favourable weather conditions during the year compared to the previous year. The increase in production in Maharashtra despite a substantial fall in area under the crop represents a recovery over the previous year's bad crop.

Crop cutting surveys for objective estimation of yield of cotton were in progress in the States of Andhra Pradesh, Gujarat, Madhya Pradesh, Maharashtra, Mysore, Rajasthan, Tamil Nadu and Uttar Pradesh. These taken together account for 90.3 per cent and 91.7 per cent of the total area and 78 per cent and 73.4 per cent of the total production of cotton during 1971-72 and 1970-71 respectively.

KEEL OF LARGEST CARGO LINER LAID

The keel was recently laid to a 21,804 tonnes D.W.T. vessel at Hindustan Shipard at Visakhapatnam. This is the biggest multipurpose bulk carrier cum general cargo liner built in India and the first ship among four being built by the Shipyard.

The design to be adopted is popularly know as "Pioneer Class". The jobs undertaken include standardisation of structure, accommodation and outfit items and complete automation of engine room and equipmens. The ship is being strengthened to navigate through light ice conditions.

INDIAN PLEA FOR STABLE EXCHANGE RATES

India's Finance Minister, Mr. Y.B. Chavan, made a strong plea for stable exchange rates at the recent Commonwealth Finance Ministers Conference. "We recognise that the unsettled conditions which have characterised the international monetary scene in recent years should probably require some changes in the rules and practices regarding the operation of the international monetary system", He said. "We are, however, convinced that a system of relatively stable exchange rates has many advantages and that every effort must be made to preserve this feature of the present international monetary system. Developing countries, in particular, do not have the institutional mechanism to cope with the many problems that are likely to arise in regime of freely floating exchange rates".

In any reform of the world monetary system, the legitimate interests of developing countries must be fully protected. In particular, the reform must facilitate an expansion of their trade as well as create conditions far an accelerated flow of capital to them in line with the commitments of the international development strategy. Indian view is that the incorporation of a link between SDR's (Special Drawing Rights) and development assistance must constitute an essential element of new monetary arrangements. Some watered-down version of a link such as a slight increase in the quotas of developing countries or a somewhat larger share in SDR allocation for them would not be a satisfactory response, as far as India is concerned, to the unanimous desire among developing countries for a link.

An increase in the relative size of the quotas of developing countries and, as such, in their share in the management of the world Bank and the International Monetary Fund is in any case necessary. But the rationale for a link between created reserves and development finance is somewhat different, namely, that those who have a great deal should not mind sharing at least their windfall gains with those whose needs are so much greater and more urgent. Pending the consideration of various proposals for reform, there should be no interruption in the fresh allocations of SDRs. "It is our sincere hope that before long an agreement would be reached on a sizeable allocation of SDRs for the period beginning January 1, 1973", stated Mr. Chavan.

As regards the future role of sterling as a reserve asset, the United Kingdom has already agreed with the European Economic Community to gradually phase out sterling's role as a reserve asset. During the transitional period, holders of sterling balances are not only entitled to a fair rate of return on their assets but they must also receive credible guarantees about the exchange value of their reserves. It is hoped that in the long run, national currencies would give way to SDRs as the primary reserve asset. In that event, it would be necessary to protect the interest income that currently accrues to developing countries from reserves held in national currencies.

Referring to the trade needs of developing countries, Mr. Chavan pointed out that the possible gains that might have accrued to the developing countries from the implementation of the Generalised Scheme of Preferences (GSP) have been greatly reduced not only by the restrictive features of the schemes of many countries but also by the forthcoming emergence of entire Western Europe as a free trade area in industrial products. Besides, one major developed country (U.S.A) has yet to implement its G.S.P. offers. In addition, the problems of Asian Developing countries, which are members of the Commonwealth, would be aggravated by the entry of the United Kingdom into the E.E.C. The forthcoming trade negotiations in 1973 under the auspicies of GATT should provide another opportunity for the developed world to honour commitments freely and voluntarily assumed by it in international development strategy. If these negotiations once again get concentrated on exchange of trade concessions among developed countries and if the problems of developing countries are relegated to the background, it would be difficult for developing countries to sustain their faith in the value of international economic cooperation.

India's Minister welcomed the Commonwealth Finance Ministers annual meeting as a forum for an exchange of views on major economic problems facing the world community. He hoped that along with international monetary reform, problems such as the replenishment of IDA and systematic debt relief will also be considered.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

NEW PROCESS FOR VITAMIN C

A new process for manufacture of Vitamin C has been developed by the Hindustan Antibiotics Limited (HAL) in collaboration with the National Chemical Laboratories, Poona.

The HAL Plans to market the new Vitamin C drug between March and June next year. The plant's production capacity of the new drug has been estimated at 125 tonnes per year The estimated cost of the plant would be of the order of Rs. 15 million. The erection of this plant is a part of the several schemes to be undertaken by the HAL during the fourth Five-Year Plan period.

The total cost of the various schemes to be undertaken by the HAL has been estimated at Rs. 80 million. The scheme included a Rs. 35 million expansion programme of the steptromycin plant, a Rs. 35 million erithromycin project, a Rs. 6 million semi-synthetic penicillin project and a Rs. 7.15 million vialing project.

During the current year, the penicillin plant had increased its production to 84 million mega units which enabled it to meet nearly 30 per cent of the country's total requirement.

ELECTRONIC MUSICAL INSTRUMENTS DEVELOPED

An electronic concern in Poona which manufactures radios, television sets and amplifiers has developed an electronic organ claimed to be the first of its kind in India which can give sounds of different musical instruments. While operating the keyboard of the organ, a player has only to press switches attached to the instrument to obtain sounds of flute, base, horn, trumpet, oboe, violin and rheed, which can be stimulated for required volume and speed. The Poona factory is presently exporting a sophisticated "rythem boxes" to United States and another electronic musical instrument that provides various types of rythem for dance bands and individual players.

Both the instruments manufactured by the firm are claimed to be designed and fabricated with 100 per cent indigenous know-how and components.

TERAPHTHALIC ACID FROM TOLUNE

A process for preparation of TA (fibre grade) from tolune and paraxylene has been developed by the Regional Lesearch Laboratory (RRL), Jorhat (Assam).

TA (Teraphthalic acid) which is mostly used for polyester fibre is usually made by the vapour phase oxidation of paraxylene or by the disproportion of potassium benzoate. In this conventional method, the TA obtained cannot be directly used for the preparation of polyester and is converted into DMT which is purified by conventional methods such as crystalisation and distillation.

The TA of fibre grade, developed by the new process is better since the molecular weight of the acid is lower than DMT and hence lesser amount of monomer are required for polyesterification. Besides, it has been found that the polyester fibres produced directly from the acid condensation with ethylene glycol have a higher tensile strength.

Tolune which is required for preparation of TA can now be available indigenously in large quantities. It is estimated that the Gujarat Petrochemical complex will produce that 15,000 tonnes of tolune. In the new developed process of RRL, tolune is formylated and paratoluic aldehyde so obtained is oxidised to TA. Alternatively tolune is chloromethylated and the chloromethylated and the chloromethytolune is oxidised in two stages to phthatic and teraphthalic acids.

FURFURAL FROM WASTE OF AGRO-INDUSTRIES

A process to produce furfural from waste of agro-industries has been developed by the Regional Research Laboratory (RRL), Jorhat (Assam).

The agro-industrial waste containing furfural yielding waste material including bagasse saw dust etc. is pre-treated with a hydrolysing agent and heat treated in a specially designed reactor at normal pressures without the use of steam. The developed process does not require special type of high pressure reactors and since steam is not being utilised, the cost of production of furfural is much lower than that produced with the employment of the conventional method.

In India furfural is imported from abroad per year which results in heavy loss of foreign exchange. During 1970-71 the country imported furfural to the tune of Rs. 0.56 million (1870 tonnes). Furfural has a high order of thermal stability in the absence of oxygen. Because of its higher boiling point (160°C) furfural losses insolvent refining of lubricating oil and in the extractive distillation of butadiene are very low.

It is produced in acquous solution by steam distillation under pressure, in the presence of a catalyst from a wide variety of agricultural waste such as oat hulls, corn cobs, cottonseed hull bran, bagasse, corn stalks, raw dust, rice husk etc. and is recovered from the distillate by fractional distillation.

GLASS INDUSTRY

With modest beginning towards the end of the last century, the glass industry in Iudia today produces a variety of products comprising bottles and vials, table and process-ware, sheet glass including figured and wired glass, scientific and laboratory glass-ware, safety sheet glass, mirrors, lamp-ware, thermo flsks, fibre glass and its products like glass cloth, helmets, insulation tapes, bangels etc. In 1970, bellotini beads used as reflective road signs, in markings for textiles decoratives, grinding meterial in paint manufacture, glass reinforced plastics and for cleaning moulds were introduced in the production stream. The manufacture of lead glass tubing for electrical lamp industry has also been taken up. This has made the country self-sufficient in this item to a large extent.

The new items that are likely to be produced in the near future, are heat resisting kitchenware, crystal-ware and rough opthalmic blanks on commercial scale. Steps are also being taken to manufacture television bulbs in the country.

With the addition of one unit, the number of units in the glass industry in 1971 was 48 with an installed capacity of 4,29,000 tonnes as against installed capacity of 4,25,000 tonnes in 1970. The additional capacity of 4,000 tonnes set up during 1971 was for the manufacture of shell and flouresecent tubes.

Production of glass and glassware during 1971 is estimated at 2,90,000 tonnes valued at Rs. 370 million compared to 2,60,000 tonnes valued at Rs. 344 million during 1970.

There has been a spurt in the demand of machine made glass bottles due to the increased requirements of consumer industries like milk schemes, breweries, soft drinks etc. This sector of the industry showed an increase of about 10 per cent in production. An additional capacity of 0.5 million tonnes was approved during 1971 to meet the increased requirements of bottles. These schemes are at various stages of implementation and a capacity of 50,000 tonnes is likely to materialise during the course of 1972. In the field of glass containerware, a striking feature has been the switchover from semi-automatic methods of production to the adaptation of latest automatic machines. Besides U.S.A. alternative sources for procuring automatic glass bottle making machines are being explored.

The flat glass sector of the industry maintained a steady increase in production in 1971 compared to the previous year. Though there continues to be only one producer of quality sheet glass by Penvernon process, an additional capacity of 10 million square metres based on Penvernon process has been approved for two entrepreneurs with a view to meet the increasing demand of quality sheet glass needed by safety glass and mirror producers. Further, two units are in advanced stage for converting their existing Forecault process to Penvernon process.

The unit engaged in production of fibre glass has increased its production by around 20 per cent in 1971-72 as compared to the previous year. The present annual installed capacity is 600 tonnes. The process for its manufacture adopted presently is to meet the imported marbles of special glass composition in electrically heated bushings. The units in the line has now embarked upon a programme of increasing its capacity from 600 tonnes to 1000 tonnes based on direct melt. This will avoid import of marbles for the purpose which will make the country not only self-reliant, but will also lead to considerable saving of foreign exchange and increase in production. Another scheme for the manufacture of fibre glass has also been approved to take care of the increasing requirements of fibre glass reinforced plastic industry which is fast developing.

As regards laboratory glassware, the unit producing borosilicate type laboratory glassware has been permitted to diversify and set up capacity for the manufacture of shells for GLS lamps. To meet the increasing requirements of shells for GLS lamps, an additional capacity of 150 million pieces has been approved.

The principal raw materials required by the industry are silica sand, soda ash, felspar, and limestone. These are available indigenously. There is no large dependence upon foreign technical know-how either. The Industry is thus fast moving ahead towards self-reliance.

With a well established base and improvement in production and manufacturing techniques, the glass industry has stepped up its export performance in recent years. From a mere Rs. 5.90 million in 1967-68, the foreign exchange earning of glass and glassware more than doubled to about Rs. 12.12 million in 1668-69. This

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uptrend was maintained in 1969-70 when the exports of these items reached a level of Rs. 13.2 million. This further improved to Rs. 17.5 million in 1970-71. In that year glass in various forms fetched Rs. 7.2 million, and glassware Rs. 10.3 million. The export supplies during the first eleven months (April 1971—February 1972) amounted to Rs. 13.48 million.

Among the varieties of glass exported during 1970-71 are window glass, wired glass, glass building blocks and other construction materials of pressed or moulded glass or laminated safety glass, glass mirror, glass wool and glass fibre. Window glass was mainly imported by Sudan, Malaysia, U.S.A. and Singapore. About 3,32,000 sq metres of window glass was exported to these and other countries at a value of Rs. 1.4 million. Singapore, Sudan, and Australia were the leading markets for wired glass. Nearly Rs. 1 million worth of laminated glass sheets were supplied among others to Afghanistan, Singapore, Malaysia, Iraq and Mauritius. Glass mirrors found markets Afghanistan, Bahrein Islands, Dubai, Hong Kong, Muscat, Nepal, South Yeman Peoples' Republic and Saudi Arabia.

In the category of glass and glassware exported, glass bottles and phials are important which fetched Rs. 2.7 million in foreign exchange in 1970-71. Leading purchasers were the Arab Republic of Egypt, Afghanistan, Ceylon, Bahrein Islands, Kuwait and Qatar. Vials for injectible needles were supplied to A.R.E. and Philippines during the same year. Glass inners for vacuum flasks were exported in substantial quantities to Australia and U.S.S.R. India-made glass tablewares and other articles for household, hotels and restaurants became popular in Nepal, U.S.A., U. K., Sudan, Afghanistan and Sri Lanka. In addition to these categories, a variety of laboratory glassware including amopules, glass tubes for colour comparison and microscope slides were exported to several markets far and near.

Recently glass bangles from India have caught the imagination of foreign markets. U.S.A., Malaysia, Afghanistan, Dubai, and U.K. are among the major buyers. Glass beads, imitation pearls, imitation precious and semi-precious stones made of glass are popular in the U.S. market. ☐

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SCOOTERS TO NIGERIA

Of India's road transport equipment, motor vehicles, motorcycles and parts are already popular abroad. Recently scooters and three-wheelers have also started prominently figuring in export business. A contract worth Rs. 2.5 million has been secured by a Poona firm from Nigeria for the supply of over 1000 scooters, three-wheelers and parts. M/s. Bajaj Auto, Chinchwad, Poona-19, have earlier received a big order from Bangla Desh worth Rs. 6.2 million in the face of stiff international competition.

The installed capacity of the Poona firm is of the order of 30,000 numbers. The firm have plans to introduce soon a new model 'Bajaj Chetak' for domestic sales and for export.

In 1971-72, road transport equipment netted through exports Rs. 1.75 million. Motor vehicles and accessories contributed Rs. 1.33 million, while motorcycles and parts fetched Rs. 0.29 million. Singapore and Arab Republic of Egypt were the major markets for motor vehicle initial equipment, while USA, Singapore and Afghanistan were among the purchasers of motor vehicle replacement parts. Czechoslovakia was the importer of motorcycle parts.

There are about 8 units engaged in the production of two wheelers such as scooters, motor cycles, mopeds and scooterettes. Of these, 4 units are engaged in the manufacture of scooters. During a period of 10 years (1961-1971), the production of scooters recorded five fold increase. From 12,817 numbers in 1961, the production rose to 67,215 numbers in 1971. Similarly production of three wheelers too increased from 1270 numbers (1961) to 6146 numbers (1971) while mopeds and scooterettes shot up from 2635 numbers to 14115 numbers. The production increase in 1971 over 1970 was 45 per cent in respect of three wheelers (6146 numbers and 4229 numbers), 15 per cent in scooters (67,212 numbers and 58,312 numbers) and 21 per cent in mopeds and scooterettes (14,113 numbers and 11,687 numbers).

ELECTRONIC GOODS ON EXPORT FRONT

India's electronic industry has come to be established. It is in position to manufacture even the sophisticated electronic products which can be compared with the items produced by the most industrially advanced nations of the world. Recent years have witnessed progress in the diversification of electronics and telecommunication items. There is a growing demand in overseas countries for these products, made in India.

From merely Rs. 0.8 million worth in 1966-67, the electronic goods exports reached a level of about Rs. 75 million in 1970-71. In the preceding year, the export value was recorded at Rs. 50 million. It is envisaged that during the Fourth Five Year Plan period, the aggregate export figure would be as much as Rs. 800 million.

A wide variety of items constitute the electronic goods exported. There are radio receivers, radio components, television sets, record players/reproducers, stereophonic amplifiers, PA equipment, tape recorders, telescopic aeriel for radios and antennae, electronic timers, transistor radio receivers, walkie and talkie systems, telecommunication equipment, teleprinters etc.

M/s. Bharat Electronics Limited, Bangalore, exported electronic goods worth Rs. 5.3 million in 1970-71. Interestingly, the firm has been able to step up their exports from Rs. 0.5 million in 1968-69 to this level now.

The range of products manufactured and exported by the firm includes sophisticated items such as medium power HF transmitter, audio and studio equipment, broadcasting equipment, HF and VHF communication equipment, fish finders and radars for the army and meterological department, receiving valves for radio sets, television receiver. To be in step with the progress made by the electronic industry elsewhere in the world, the firm now manufactures semiconductor devices like Germanium and Silicon transistors and diodes, ceramic capacitors, TV picture tubes, Cathode Ray tubes, Piezo-electric crystals, transmitting tubes and X-ray tubes etc. They propose to manufacture Integrated circuits, TV transmitters and TV studio equipment within a short period. Their second project at Gaziabad in UP is under progress.

From only Rs. 0.6 million in 1956-57, the firm's production rose to a level of Rs. 328.2 million in 1971-72. The country's total output of electronic goods increased from Rs. 265 million in 1964-65 to Rs. 1050 million in 1969 and Rs. 1500 million in 1970.

AWARDS FOR MAN-MADE TEXTILE EXPORTERS

Six awards were presented to leading exporters of man-made textiles in recognition of their contribution to the country's foreign exchange earnings. The scheme of awards for outstanding export performance in rayon and synthetic fabric garments, hosiery, knitwear, tyre cord yarn and farics is organised by the Silk and Rayon Textiles Export Promotion Council, Resham Bhavan, 78, Veer Nariman Road, Bombay-20.

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A trophy for fabrics exports was received by M/s. Importex International whose exports have generated steady interest in international markets. M/s. Reliance Textile Industries Pvt. Ltd. also won a trophy for fabrics. They started production of wrap knitted fabrics in 1966 and printing facilities including automatic screen printing were added later. Sophisticated machinery for processing and printing as also photographic equipment were installed and with the addition of looms in 1972 they became a complete synthetic plant. Their exports include knitted shirtings, dress materials and their products compare favourably with those of developed countries like Japan.

A certificate of merit for fabric exports was awarded to M/s. Bharat Vijay Velvet and Silk Mills, Starting their export trade in velvet fabrics in small quantities in late fifties, the company today exports dyed, tie and dye, printed, patchwork and embroidered velvet. They also export dyed and printed rayon, tafetta, satin and georgette saree material. Compared to their export value of merely Rs. 0.5 million in 1964-65, their exports particularly in the last three years have been witnessing unprecedented dynamism to reach a level of Rs. 2.5 million in 1971-72. Their markets include U.S.A. and Canada.

The export success of M/s. Jasmine Mills got them a Certificate of Merit for fabrics. One of the finest composite units in India known for its quality products catering to both local and foreign clientele, the company has capacity for weaving, knitting, embroidery, P.V.C. Leather cloth, uptodate dyeing, printing and finishing facilities. The range of fabrics marketed by them includes fancy prints, embroidered, knitted lace, curtain and dress materials, tapestries, industrial fabrics, leather cloth and fancy woven broacades. They built up several markets abroad like Malaysia, Singapore, Sri Lanka, Kenya, Mauritius, and Fiji Islands as also U.K., U.S.A. and Canada. Their export value in 1972 was of the order of Rs. 6 million.

Another exporter of artsilk fibre silk fabrics, M/s. Venilal's Export House Pvt. Ltd., also won a certificate of merit for fabrics. They have been exporting to 12 countries in Europe and Africa. For readymade garment exports, a certificate of merit was awarded to M/s. Chemicals and Fibres of India Ltd., who have manufactured and supplied 'Terene' polyester fibre since 1965. They have also pioneered a massive effort to develop exports of 'Terene' polyester fabrics and garments to intensely competetive Western markets, North America, West Asia, Australia and Africa. The foreign exchange earned by their exports has already crossed Rs. 40 million mark. Exhibited frequently at major international trade fairs, the fim's exports are becoming increasingly popular.

GLASSWARE IN EXPORT TRADE

India's glass industry has made strides in the last two decades. In the field of production and export, already a considerable headway has been made by the industry. With the employment of sophisticated techniques of production, the items manufactured by the industry are steadily picking up overseas markets.

From Rs. 13.2 million worth in 1969-70, the exports of glass and glassware improved to Rs. 17.5 million in 1970-71. During 1970-71, glassware fetched Rs. 10.3 million while glass in several forms earned Rs. 7.2 million. In 1971-72, the offtake was worth Rs. 8.38 million for glassware and Rs. 6.10 million for glass.

The export items in the line include window glass, optical glasses, spectacle lenses, glass unworked, plate glass, wired glass sheets, glass mirror, other mirror, blown glass, glass for sun glasses, clock and watch glasses, glass fibre, glass wool, articles of glass fibre etc. Under the glassware category, the main items constituted bottles and phials, glasses inners for vacuum flasks, glass tableware and other articles, laboratory glassware, glass tubes, microscope slides, glass bangles, imitation precious, semi precious stones, fancy decorativeglas s small wares and other articles of glasses.

These items were exported mainly to Sudan, Malaysia, Singapore, U.S.A., Australia, Afghanistan, Iraq, Mauritius, Bahrein, Dubai, Hong Kong, Muscat, Nepal, South Yemen Republic and Saudi Arabia.

M/s. Fibreglass Pilkinsons Ltd. Naupada, Thana, Bombay, one of the firms engaged in the production of glass wool, glass textiles and glass staple tissues exported these products to the tune of Rs. 4,16,000 in 1971-72.

The firm's manufacturing capacity is of the order of 1000 tonnes of glass wool, 600 tonnes of glass textile and 85 tonnes of glass staple tissues. This unit was set up specially for reducing dependence on imports of fibreglass.

The country's production of important glass items in 1970-71 was: 14.1 million square metres in respect of sheet glass, 200,000 tonnes for glass containers, 150 million pieces of glass shells, and 4.0 million pieces of vacuum flasks.

There were 47 units (1970) engaged in glass and glassware manufacture with a combined capacity of 125,000 tonnes. Additional capacities of 147,000 tonnes and 100,000 tonnes were created subsequently.

RAILWAY KNOW-HOW FOR EXPORT

Since the launching of the first overseas consultancy venture in 1961, Indian railways have offered technical know-how and services to many countries in West Asia, East Asia and South East Asia.

Indian railways have been associated in a vital capacity with the ECAFE sponsored concept of Trans-Asian railway network linking Europe to Bangkok and Singapore. In fact at the 1969 ECAFE Economic Committee Session, the Ad hoc committee set up for this link up was chaired by Indian Representative. Two Senior Indian Railway specialists were commissioned by ECAFE to prepare and present reports to the special meeting of Trans-Asian Railway experts held in Bangkok in December 1970. The first report dealt with the establishment of basic parameters for technical compatibility of rolling stock and fixed installations of different railway systems. The second covered traffic forecasts and economic viability of missing links on the route.

The railways consider the consultancy services as necessary avenues to boost exports of railway components and equipment. India's example in operating a vast railway network in the face of scarce resources and their optimum utilisation was found to be suitable in most of the developing countries of these regions and had been preferred to the systems obtaining in more advanced countries of the West. India also carried out a traffic study for the 400 km. Baghdad-Haaibah project at the request of the Government of Iraq in 1970. This project envisaged a direct rail link between the Mediterranean and some Persian Gulf ports.

Consultancy services were also provided by India to Thailand, Philippines and Iran. During a recent tour of some European countries, a team led by the India's Railway Board Chairman, received enquiries from some countries for possible exchange of technical know-how and specialised railway equipment being manufactured in India.

EXPORT OF CONSULTANCY SERVICES

India has provided consultancy services in water and power development to Afghanistan, Sri Lanka, Laos, Nigeria and Zambia. The Indian organisation that has succeeded in exporting the services to these countries, the Water and Power Development Consultancy Services Organisation, has also taken up promotional activities in a number of African countries, Indonesia, Fiji and South Korea.

The organisation had also signed agreements with Afghanistan (Breshna Moassessa Electricity Authority) and River Valley Development Board of Sri Lanka in connection with certain projects.

Various international financing agencies such as United Nations Development Programme (UNDP), Asian Development Bank, International Bank for Reconstruction and Development, International Development Association, and clients in foreign countries had reposed confidence in the Indian exporter. The work on hand includes preparation of feasibility report for Ban Mak Nao project in Loas, provision of power exports to Zambia and submission of tenders for Limassol storm water, drainage and sewerage system in Cyprus. The company had also submitted a tender for hydrological survey for a mine in Algeria with the assistance of Geological Survey of India.

SIGNIFICANT ACHIEVEMENT IN WIRE CABLE EXPORTS

Among the various engineering products which have come up prominently in the export field, insulated wires and cables occupy an important place. During the period 1971-1972, the total exports of insulated wires and cables amounted to more than Rs. 51.7 million. The important destinations for enamelled copper welding wire were Iran, Iraq, Kuwait, Qatar and Singapore. Insulated copper winding wire strips were imported largely by Dubai, Kuwait, Singapore and the Sudan. Among the many countries which imported plastic insulated wire from India, mention may be made of Cyprus, Dubai, Iran, Iraq, Kuwait, Malaysia, Qatar, People's Republic of South Yemen, Saudi Arabia, and U.K. Other insulated cables were imported inter-alia by Abu Dhabi, Sri Lanka, Iran, Kuwait, Malaysia, Qatar, Singapore, Sudan, and USSR. The major importers of paper insulated cables were German Democratic Republic, Federal Republic of Germany, Hong Kong, Iran, Kuwait, Malaysia, Qatar, People's Republic of South Yemen, Singapore, Arab Republic of Egypt and USSR. Among the importers of plastic insulated cables and flexes, mention may made of Federal Republic of Germany, Iraq, Kuwait, Malaysia, Qatar and Sudan. Rubber insulated cables and flexes went mainly to Iran, Kuwait, Singapore. Insulated cables, cords and flexes of other types were purchased by Sri Lanka, Dubai, German Democratic Republic, Hong Kong, Iran, Kuwait, Singapore, Sudan and USSR.

M/s. Mysore Wire & Metal Industries of Bangalore are manufacturing and exporting cables, wires, strips, flats, rods and cotton and paper covered copper wire. The major destinations of their exports are Sri Lanka, Singapore, Malaysia, Philippines, Kuwait and Iraq. Their export trade was valued at Rs. 2.89 million in 1971-72 as compared to only Rs. 1.39 million in 1968-69.

POLYVINYL ACETATE DISPERSIONS IN EXPORT TRADE

Establishing reputation as a manufacturer and exporter of polyvinyl acetate dispersions and P.V.A. dispersions and other important chemicals for the use of different industries in India and abroad, M/s. Hoechest Dyes and Chemicals, Parekh Mahal, Veer Nariman Road, Churchgate, Bombay-1, have to their credit export performance worth Rs. 14.00 million during the year 1970.

The Bombay firm has been able to export mowilith to South Korea and the Arab Republic of Egypt and Appretan to Turkey, Arab Republic of Egypt and South Vietnam in the past few years.

The firm's plant at Bombay, engaged in the manufacture of polyvinyl acetate dispersions with an annual production capacity of 2400 tonnes, is presently producing various grades of PVA dispersions which are in wide demand in paints, textile and khadi printing industries. The PVA dispersions are presently being used as synthetic adhesive (Mowicall) as binders for plastic emulsion paints (mowilith) and as textile finishing agents and binders in khadi printing (Appretan).

EXPORT PERFORMANCE AND POTENTIAL

EXPORT PERFORMANCE IN 1971-72

Excluding exports worth about Rs. 380 million to Bangla Desh, India's export trade in 1971-72 was of the order of Rs. 15,635 million. In 1970-71, the export value was Rs. 15,244 million.

Improvement in export trade was witnessed for a number of products. In the group relating to 'Food and Live Animals', fish and fish preparations recorded an export earning of Rs. 413.88 million in 1971-72 as against Rs. 305.37 million. Fruits and vegetables netted Rs. 703.48 million as compared to Rs. 650.17 million. Of this cashew kernels alone fetched Rs. 613.32 million, as against Rs. 521 million. Export of sugar and preparations thereof was valued Rs. 309.54 million against Rs. 294.47 million. Export trade in tea also brightened at Rs. 1563.14 million against Rs. 1482.47 million.

Exports of tobacco and manufactures were valued at Rs. 451.05 million as against Rs. 325.70 million.

The offtake of oil seeds, oil nuts and oil kernels was Rs. 62.90 million against Rs. 59.56 million. Foreign exchange earned through supplies of wood, lumber and cork was Rs. 69.64 million as compared to Rs. 59.70 million. The entire group of textile fibres and their waste also looked up at Rs. 370.94 million against Rs. 273.41 million. In this group, raw cotton exports were Rs. 186.30 million against Rs. 164.13 million and raw jute exports were Rs. 130 million against Rs. 43 million. Fixed vegetable oils and fats were supplied overseas to the tune of Rs. 71.60 million as compared to Rs. 70.32 million.

In the group of chemicals, medicinal and pharmaceutical products were exported to earn Rs. 87 million as against Rs. 84.65 million while essential oils and perfumed materials fetched Rs. 86.38 million against Rs. 71.27 million. Of chemicals, elements and compounds, organic chemicals fetched Rs. 33.29 million while in the previous year their earning was Rs 33.11 million. Inorganic chemicals, elements and halogen salts were exported to the tune of Rs. 21.17 million as against Rs. 19.72 million.

The section relating to leather and leather manufactures witnessed a clear uptrend. Their export value was Rs. 907.65 million against Rs. 721.82 million. Rubber manufactures also showed up at Rs. 76.60 million against Rs. 68.57 million.

Almost all categories of textile yarn and fabrics improvod their export performance having fetched Rs. 4260.70 million against Rs. 3504.10 million. Jute manufactures (excluding twist and yarn) were exported at Rs. 2632.87 million as compared to Rs. 1891.73 million. Cotton manufactures excluding yarn and thread fetched Rs. 1000 million against Rs. 974.66 million. The export of floor coverings and tapestries other than of cotton and jute fetched Rs. 197.69 million against Rs. 157.50 million.

Overseas sales of pearls, precious and semi-precious stones netted Rs. 515.15 million in 1971-72 as against Rs. 418.79 million in 1970-71.

In the group of iron and steel, rails and railway track construction material earned Rs. 88.22 million as compared to Rs. 65.24 million while tubes, pipes and fittings netted Rs. 107.97 million against Rs. 106.60 million. Hand and machine tools constituted another area of export growth – Rs. 58.93 million against Rs. 48.96 million. Cutlery exports also improved from Rs. 4.2 million to Rs. 4.37 million.

In the group of machinery other than electric, power generating machinery was exported to the level of Rs. 55.22 million against Rs. 54.30 million while office machines earned Rs. 21.45 million against Rs. 19.57 million and machines for special industries Rs. 17.33 million against Rs. 15.75 million.

The entire group of electric machinery and apparatus and appliances registered definite export growth, at Rs. 186.7 million from Rs. 160.81 million. In this group, electric power machinery and switchgears were exported to the tune of Rs. 47.48 million as against Rs. 44.68 million, equipment for distributing electricity Rs. 54 million against Rs. 35.65 million and telecommunication apparatus Rs. 29.92 million against Rs. 27 million.

Export of railway vehicles had more than doubled at Rs. 69.40 million against Rs. 28.2 million. Road vehicles (other than motor vehicles) also showed signs of improvement at Rs. 73.22 million from Rs. 70.98 million. Aircraft exports were Rs. 16.63 million against Rs. 0.08 million. Among other products, whose export performance improved in 1971-72 as compared to the preceding year were sanitary and pulmbing fixtures, travel goods including handbags, clothing, footwear; scientific, medical, optical, measuring and controlling instruments; photographic and cinematographic supplies; musical instruments; printed matters and works of art collectors' pieces and antiques.

The directional pattern of India's export trade also reveals certain interesting trends. The North American region absorbed Rs. 3022 million worth of India's supplies in 1971-72 as against Rs. 2347 million in the preceding year. U.S.A.'s purchases rose to Rs. 2627.90 million from Rs. 2067.80 million. Canadian purchases were of the order of Rs. 384 million against Rs. 218 million. The Latin American region also improved its intake from India to Rs. 125.82 million as compared to Rs. 83.08 million. The countries in this region whose imports from India improved were Argentina, Chile, Paraguay, Peru and Uruguay.

Among ECAFE countries, the markets where Indian products were sold more in 1971-72 included Australia, China Republic, Republic of Korea, Nepal, New Zealand, Bangla Desh, Philippines, Singapore and Republic of Vietnam. While there was a fall in exports to East Europe as a whole at Rs. 3434.79 million as against Rs. 3623.06 million, U.S.S.R. purchased at Rs. 2086.76 million against Rs. 2098.48 million, Bulgaria improved its position at Rs. 154.80 million against Rs. 95.80 million, Czechoslovakia Rs. 304.46 million against Rs. 294.40 million, Hungary Rs. 155 million against Rs. 137.38 million.

The European Common Market countries also absorbed more at Rs. 1237.71 million against Rs. 981.5 million. Belgium imported worth Rs. 240.30 million of Indian products as against Rs. 203.19 million. Exports to France were Rs. 241.26 million against Rs. 179.42 million, Federal Republic of Germany Rs. 367.49 million, against Rs. 321.55 million, Italy Rs. 241.48 million against Rs. 138.56 million, and Netherlands Rs. 147.14 million against Rs. 138.75 million.

Among the European Free Trade Area countries, U.K.'s imports were Rs. 1680.81 million against Rs. 1699.98 million, Sweden imported worth Rs. 60.28 million against Rs. 59.33 million and Switzerland Rs. 74.77 million against Rs. 72.26 million.

African imports dropped from Rs. 1381.62 million to Rs. 1319.12 million. But many African markets improved their purchases, such as Cameroon, Congo (People and Democratic) Republics, Gambia, Ghana, Libya, Malawi, Mauritius, Nigeria, Somalia, Sudan, Swaziland, Tunisia, Uganda and Zambia. A.R.E. purchased less - Rs. 230 million against Rs. 552.86 million.

TEXTILE FABRIC EXPORTS BRIGHTEN

India's export trade in 1971-72 for textile yarn, fabrics and made up articles rose to Rs. 4260.70 million as compared to Rs. 3504.10 million.

The major area of export dynamism was jute manufactures which fetched Rs. 2632.87 million against Rs. 1891.73 million. In this group carpet backing cloth was exported in 1971-72 to the tune of Rs. 1028 million. U.S.A. was the most important market at an import value of Rs. 823.56 million. Canadian purchases amounted to Rs. 49.82 million while the import value of Australia was Rs. 40.40 million, Japan Rs. 35.32 million, Belgium Rs. 11.41 million, Czechoslovakia Rs. 9.5 million, German Democratic Republic Rs. 9.6 million, Mexico Rs. 4.6 million, New Zealand Rs. 15.77 million and Swaziland Rs. 6 million. Other hessian cloth was supplied to fetch Rs. 871.58 million. Here again U.S.A. was the major purchaser at Rs. 346.97 million. Imports by Canada were of the order of Rs. 107.70 million while Argentina imported worth Rs. 46.81 million, Australia Rs. 57.90 million, Iran Rs. 17.12 million, New Zealand Rs. 15.48 million, Turkey Rs. 12.6 million, U.K. Rs. 58.35 million and U.S.S.R. Rs. 88.34 million. Jute sacking cloth earned through export sales Rs. 12.80 million, Malaysia having absorbed Rs. 7 million and Sudan over Rs. 2 million. The group of special jute fabrics and related products was equally active in export markets. Of this, cordage cables, ropes, twines fetched Rs. 3.98 million.

U.S.A. was again the major purchaser of jute baggings for cotton. It Imported worth Rs. 68.54 million out of total export earning of Rs. 71.92 million. Jute hessian bags improved their export dynamism, earning foreign exchange worth Rs. 274.90 million. U.S.S.R.'s imports of these bags amounted to Rs. 177.41 million. Jute sacking bag exports totalled Rs. 278.91 million. The major markets for this variety were U.S.S.R. (Rs. 44.44 million), Zambia (Rs. 16.33 million), A.R.E. Rs. 11.42 million), Tanzanian Republic (Rs.14.36 million), Sudan (Rs. 48 million), Chile Rs. 20.82 million), Burma (Rs. 22.73 million) and Bulgaria (Rs. 10.84 million). New Zealand absorbed nearly half of Indian supplies of jute wool sacks in the year under review. That country's intake value through sacks was Rs. 10.9 million as against India's total export earning at Rs. 22.20 million.

Czechoslovakia emerged as the principal importer of jute tarpaulins having imported worth Rs. 11.10 million out of total of Rs. 26.41 million. German Democratic Republic, Hungary and German Federal Republic were the other major buyers.

Cotton manufactures excluding yarn and clothing also evinced signs of improvement, having earned Rs. 1000.43 million against Rs. 974.66 million. In this group, handloom piecegoods were exported to the tune of Rs. 99.54 million. The supplies in this group included grey dhotis, grey lungies, grey sarees and grey shirtings, white and printed varieties of the same, coloured Madras handkerchiefs' etc. Mill-made piecegoods include several varieties ranging from unbleached bed tickings, drills, long cloth and sheetings to bleached drills, long cloth, mulls, muslins, poplins, voils and sarees all of which earned a foreign exchange value of Rs. 674.68 million. The group Tulle and laces, embriodery and ribbon were exported to the tune of Rs. 9 million. Special fabrics of cotton and related products such as imitation leather cloth, cotton cordage etc. fetched Rs. 10.38 million. Made-up articles wholly of cotton, like bags and sacks, bedsheets, table cloth, towels, etc. were sold abroad to the level of Rs. 186.74 million in 1971-72.

Floor coverings and tapestries (other than of cotton and jute) were also active in the world market having earned Rs. 197.70 million in 1971-72 as against Rs. 157.50 million in the preceding year. In this group, handmade woollen carpets were exported mainly to U.S.A., U. S. S. R., U. K. and German Federal Republic. The handloom and other varieties of woollen carpets were exported worth as much as Rs. 123.15 million. Other woollen varieties sold included woollen drugets and floor rugs. Among coir manufactures, coir mats and mattings earned Rs. 53.40 million and those of coir carpets and floor rugs Rs. 15.92 million. The bulk of coir carpet supplies were in the direction of U.S.S.R. which imported worth as much as Rs. 15.75 million. U. K. was the most important market for coir mats at Rs. 14.52 million out of total coir matting earning of Rs. 46. 44 million. U.K. followed by U.S.A. was again the most important market for coir mattings.

Textile yarn and thread was exported by India to the tune of Rs. 280.36 million in 1971-72. In the preceding year these exports were valued at Rs. 344.79 million. Cotton yarn and thread, both grey and not mercerised as well as bleached, dyed and mercerised varieties were exported to the level of Rs. 176 80 million. U.K., Czechoslovakia were important purchasers of the grey and not mercerised variety. Of the other varieties, exports of bleached single combed yarn fetched Rs. 10.54 million mainly from Sri Lanka and Burma; bleached, plied and combed yarn netted Rs. 32.36 million with Burma as the foremost recipient, sewing thread earned Rs. 15.71 million mainly from Sudan, Somalia, Kuwait and Jordan.

Yarn and thread of synthetic fibres was also exported in some quantity at a value of Rs. 1.98 million. The yarn and thread of regenerated varieties, viscose rayon filament and viscose rayon tyre yarn, netted Rs. 14.65 million. Jute yarn was mainly imported by U.S.A., New Zealand and U.K. These and other markets paid a total of Rs. 19.93 million. The export of coir yarn was of the order of Rs, 64.40 million. France, Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Italy, Netherlands, U.K., U.S.A. were the other major markets.

Woven textile fabrics excluding narrow or special fabrics (other than cotton and Jute) were exported to the level of Rs. 46.90 million. Woven silk fabric netted Rs. 38.68 million. Silk fabrics exported included zari and zaribordered silk sarees and woven handloom fabrics. Woven silk fabrics, also earned substantial foreign exchange at Rs. 22.17 million. Woven synthetic fibre fabrics like nylon sarees, twinkle nylon, nylon georegette, polyester shirtings and suitings etc. earned Rs. 28 million. Among other woven fabrics (regenerated), velvet was exported to the tune of Rs. 10 million mainly to U.S.A. and South Yemen People's Republic.

In the group relating to cordage, twines and manufactures thereof (other than cotton and jute), the items exported were ropes, manila hemp, sisal ropes and rayon gas mantles etc.

TELECOMMUNICATION APPARATUS TO WORLD MARKETS

India supplied substantial quantities of telecommunication apparatus abrod - nearly Rs. 30 million worth in 1971-72. In the earlier year the export value was Rs. 27 million.

Radio broadcast receivers accounted for the principal share of these exports. They fetched as much as Rs. 21.69 million in 1971-72. Transistor radio receiver sets are in fact the most important single item of export among telecommunication apparatus supplied overseas, having earned Rs. 17.18 million. The transistor sets were principally exported to Sudan whose intake value was of the order of Rs. 8.56 million. U. K. is another important market having purchased the item at Rs. 4.8 million. Congo People's Republic, Czechoslovakia, Ethiopia, Ireland, Mauritius and Iraq were also among notable importers.

Export sales of telephone and telegraph items and parts amounted to over Rs. 3 million. Kenya, U. K., Australia, Sri Lanka, Iraq, Singapore, Nigeria and New Zealand were among the leading markets. Some exports of microphones, loudspeakers, amplifiers, transmission and reception apparatus, wireless reception apparatus, radar, radio and navigational aid apparatus and parts were also effected. Special mention may be made of the exports of wireless reception apparatus and parts to Iran and Qatar and radio and navigational aid apparatus to Korea Republic.

DOMESTIC UTENSILS IMPROVE EXPORT EARNINGS

A wide variety of India-made utensils of varying metallic origin has captured the world markets. Year after year, overseas demand for these utensils has been increasing. From Rs. 30 million in 1970-71 the following year recorded export value to the level of Rs. 32.94 million.

Stainless steel utensils were exported in 1971-72 to the tune of Rs. 3.6 million. U.K. was the major market. Its imports were of the order of Rs. 0.8 million. Zambia, Singapore, Malaysia, Kuwait, Uganda, Tanzania, Kenya and Bahrein Islands were among the other importers.

Ghamellas have particularly improved their export position in 1971-72 compared to the preceding year–Rs. 1.20 million from Rs. 0.53 million. Substantial imports by Nigeria, Ghana and Kenya were responsible for the export growth of this item. Nigeria hardly imported Rs. 57,000 worth of this item in 1970-71 while in the succeeding year its imports were as much as Rs. 0.6 million.

E.P.N.S. ware is another area of export expansion. Foreign exchange earned from this line of export improved from Rs. 9 million to Rs. 10 million in the comparable years. The ware was exported to nearly sixty countries among which U.S.S.R. and U.S.A. accounted for more than half of the total (Rs. 3 million and Rs. 2.7 million respectively). U.K. is also an important market having imported worth Rs. 1.5 million.

Aluminium utensils constitute another prominent line of export. These utensils fetched Rs. 5.3 million in 1971-72. Malawi, Kuwait, Muscat, Saudi Arabia, Dubai and Nepal were the principal importers. Brass and copper utensils together netted about Rs. 0.8 million in the year. Galvanised iron buckets fetched Rs. 0.8 million. Cast iron pan, enamelled iron utensil and other utensils of iron or steel, utensils of copper alloys and aluminium alloys are also exported in varying quantities. Sanitary fixtures made of copper or aluminium and other alloys are also active in the export stream.

Among the other household equipment of base-metals, trophies are eagerly sought by the world markets. This item netted Rs. 1.3 million, mainly from its export to U.K., Singapore, Netherlands and Malaysia.

POLAND TO BUY CONSUMER GOODS FROM INDIA

Pursuant to the talks held by trade delegation from India to Poland, it was decided to increase substantially the trade turnover between India and Poland during the next three years. In addition to traditional commodities, Poland will import from India textiles, leather, footwear, bags, garments, vacuum flasks, textile machinery, automobile components, castings, tools, air conditioning equipment, refrigerators, deep freezers and other electrical house-hold goods.

Another delegation from India is to visit Poland shortly for finalisation of a contract for additional supplies of railway wagons to that country. Poland will export to India urea, sulphur, mining machinery, textile machinery, machine tools, equipment for power projects, chemical industry etc.

PIG IRON TO SOVIET UNION

The Bokaro Steel Plant is to export 250,000 tonnes of saleable pig iron to the Soviet Union by July 1973. After the commissioning of the first blast furnace complex by October 3, 1972 and once the steel mill shop goes into production, the entire production of pig iron is to be sold out. Production of the plant's saleable pig iron by March 1973 is estimated to 274,000 tonnes.

In 1971-72, India's export trade in pig iron including casting pig iron was of the order of Rs. 68 million (203,450 tonnes). The major importer was Japan to the extent of Rs. 53.44 million. Yugoslavia imported worth Rs. 5 million while Singapore's purchases were of the order of Rs. 4.88 million and those of Korea Republic Rs. 2.62 million. The entire group of iron and steel in the same period fetched foreign exchange of Rs. 407.72 million. Of this, iron and steel tubes, pipes and fittings earned Rs. 107.97 million; rails and railway track construction material Rs. 88.22 million; and iron and steel bars, rods, angles, shapes and sections Rs. 108 million.

INDIAN HANDICRAFTS EXHIBITION IN BRAZIL

Indian handicrafts exhibition was recenily organised at Rio de Janeiro in Brazil. As a result of exposition of Indian traditional handicrafts in the exhibition, brisk sale of Indian handicrafts was recorded.

Indian ambassador to Brazil, Mr. Prithi Singh inaugurated the exhibition on September 15 at the museum of modern art in Rio de Janeiro. More than 450 people attended the inauguration function, including the Governor of the State of Guanabara and other dignitaries from Brazilian Government, Brazilian industrialialists and businessmen, journalists and artists.

The exhibition continued for two weeks until September 28 and coincided with 'India fortnight' which held at museum of modern Art.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

INDIA ON WORLD MONETARY REFORM

"Urgent action should be taken for allocation of Special Drawing Rights (S.D.R.s) to developing countries for a second basic period of at least two years from January 1, 1973", stated India's Finance Minister, Mr. Y.B. Chavan, at the recent annual meeting of International Monetary Fund. "While we may consider in various committees and groups any larger role for SDRs as a part of reform of the would monetary system, we feel that there is no reason on this account to delay decision on further allocation of SDRs". There should be continuing and regulated allocation of SDRs and any break in the continuity of this arrangement will not be conducive to enhancing the role of SDRs for the future monetary system.

The argument against the continuance of SDRs that world reserves have increased substantially during the last year or so is not a conclusive one in India's judgement. "Apart from the fact that an increase in the reserves has been grossly uneven, if we are to intrepret the need for created reserves strictly in terms of the trend in global reserves, we can hardly disregard the fact that recent events have virtually put out of commission the vast amount of gold held in national reserves". India, therefore, supports strongly the idea of interim two-year allocation on the same scale as the last one pending resolution of various issues connected with the monetary reform.

India's Minister also emphasised the need for creating durable and equitable world monetary reform linking SDRs with additional development finance and also streamlining procedures for obtaining funds of International Development Association by the developing countries. As regards the monetary reform, he highlighted inter-relationship between monetary reform, trade and development. Developed, countries on the other hand, had confirmed the relationship only between the reform and trade.

There is also an urgent need for the international community to devise new set of rules for orderly rescheduling of past debts, the Finance Minister said. Explaining India's policy on receiving external economic assistance, he said that India accepted such assistance provided it was available without strings attached to it. "We have always recognised that dependence on aid must not become a permanent feature of our national economic life". Accordingly, the Five year plans in India lay great empasis on speedy movement towards the objective of self-sustained growth. Development could not be imported from abroad even though it should be recognised that pursuit of liberal trade and aid policies by developed countries would help developing countries in their efforts at domestic resource mobilization. There is no doubt that in poor societies, achievement of self-reliance must involve tough and at times painful decisions for effective mobilisation and utilisation of domestic resources. However, living as we are in a world in which international aid mechanism is to a large extent a political mechanism, the developing countries have perhaps no alternative to achieving self-reliance as soon as posssible.

Referring to the issue of International Development Association's (IDA) credits to developing countries, the Minister expressed happiness at the continuity of growth in the World Banks' volume of lending. At the same time, the operations of IDA had virtually come to a standstill owing to the delay for the second time in ratification of replenishment of IDA funds. This would underline the need for reconsideration of procedures for obtaining IDA funds.

Defending the formation of the "Group of 24" by the developing countries, Mr. Chavan said that the formation of the group is a clear expression of the will of developing countries representing nearly one hundred members of IMF that their stake in the smooth functioning of international monetary system was in no way less than that of the developed countries and that it was therefore essential for the developing countries to fully participate in any decision making process concerning the future of international monetary system. Indeed, there is no conflict between the formation of this group for evolving and expressing a consensus among developing countries and the need for action by all the members of the Fund on matters affecting international monetary system.

The architects of Bretton Woods Agreement reveal clearly the objectives of international monetary cooperation. They were clear that one of its central purposes should be to facilitate the balanced growth of international trade and contribute thereby to the promotion and maintenance of high level of employment and real income and to the development of productive resources of all its members. In particular, any reform of international monetary system must facilitate both the progressive expansion and diversification of exports of developing countries and the transfer of financial resources to these countries in accordance with the objectives of international development strategy for the second United Nations Decade.

It was pointed out that more than 100 countries in IMF exercised voting rights of only about 26 per cent while about ten industrial countries exercised more than 62 per cent. Such a gross imbalance would not be conducive in the long run to the evolution of a satisfactory type of mutual cooperation between the developed and the developing countries.

India's Finance Minister added that the present time was a crucial phase for many of developing countries. It was a period testing their faith in spirit of international economic cooperation. After twenty five years of active efforts and of inconsiderable success, we witness once again clear assertion of political considerations in matters relating to development finance. Even before the exercise in international monetary reform has got off the ground, there are more than mere murmurs to the effect that it is not so much the forces of reason and persuation but of power and influence which will ultimately swing the conclusion this way or that. Just because we are poor our judgment or views are not necessarily more clear sighted, but we do know that international economic cooperation means much more to us than to those for whom affluence is already becoming a burden".

INDIA'S FIFTH FIVE-YEAR PLAN

India's Planning Commission placed a tentative estimate on the financial aspect of the Fifth Five-Year Plan (1974-79). It provided for an outlay of Rs. 510,000 million of which the country's public sector share would be about Rs. 350,000 million. This estimate is based on an overall growth rate of 5.5 per cent, the sectors of agriculture and industry contrbuting 4.5 and 8 to 9 per cent annual growth rates respectively. Export growth target is kept at 7 per cent per anum. Thus there is no change in the overall and sectoral growth rates envisaged for the Fouth Plan.

The resource base for the Fifth Plan worked out at 1972-73 taxation level and 1971-72 price level, leaves an external gap of about Rs. 40,000 million after taking into account the likely import-export projections and debt servicing as also the national objective of reducing net foreign aid to zero by 1978-79. The planner's concern mainly appears to be however to bridge the balance of payments gap consistent with the country's resolve to become self-reliant. It is felt that some hard decisions would have to be taken so as to secure sizable trade surplus.

Domestic resource mobilisation is not regarded as an insurmountable problem because of larger scope for market borrowings and small savings. Additional resource mobilisation for the Fifth Plan period by the Central and State Governments is assumed at Rs. 60,000 million against Rs. 40,000 million in the Fourth Plan (Revised Estimates).

The Resource Group of Planning Commission have taken into account the contribution from public enterprises, their internal reserves and depreciation funds for determining gross investments in the public sector. The Group has emphasised the deficit financing should not be allowed to exceed the non-inflationary limit, that is, the level necessary for achieving real growth in income of an order of 5.5 per cent. The quantum of deficit financing would be lower than the proportion of deficit financing to the Fourth Plan outlay.

The Resource Group assumed the private sector investment at about Rs. 160,000 million against Rs. 90,000 million anticipated in the Fourth Plan period. The Fourth Plan's public sector outlay was estimated at Rs. 158,980 million in the mid-Term Appraisal, carried out in December 1971. The Planning Commission's paper on 'Approach to Fifth Plan' approved by the National Development Council in May last, envisaged doubling of public sector outlay in Fifth Plan. The Resource group have pointed out that the public sector plan of a size of Rs. 349,000 million would be feasible.

OVERSEAS INTEREST IN INDIAN SHIP BUILDING

Leading ship manufacturers abroad have come forward to assist India in its current programmes of ship building. The Soviet Union has offered its support in principle to India's plans of augmenting ship building capacity through additional shipyards. Ship manufactures in U.K. and West Germany are interested in India's proposal for collaboration arrangements to build two new shipyards and establish a central design and research centre for ship building. One of the new shipyards expected to be built may be located at or near Haldia and the other also on the Eastern coast.

Presently ships of a total capacity of 2.6 million GRT are in operation in India and orders were already placed for 1.4 million GRT more, leaving a shortfall of about 500,000 GRT by the end of the Fourth Five-Year Plan. Thus while India is entitled to carry 50 per cent of her trade, Indian ships carry only 20 per cent. Tentative proposals for the Fifth Plan have a shipping target of 5.8 million GRT.

India's urgent need is in respect of tankers and bulk cargo vesssels. Of the total orders placed abroad by India in 1971 for 21 million DWT, 56 per cent were for bulk tankers of 150,000 DWT and about and the rest for bulk carriers. The Work Bank assistance of $ 83 million is to help purchase by India 4 tankers of 87 GRT and 2 product carriers of 19,500 GRT. Of these, four are to be bought from Japan and two from Yugoslavia.

The Hindustan Shipyard Limited, Visakhapatnam made a gross profit at Rs. 11 million during 1971 as compared to Rs. 2.76 million during the previous year. The turnover of ship repairs also increased to Rs. 10.93 million as against Rs. 0.88 million. Such a large turnover on repairs and docking charges became possible due to the full occupation of the dry dock from the date of commissioning during 1971-72. The revenue earned on ship repairs in 1971-72 was of the order of Rs. 7.67 million in foreign exchange.

CEMENT OUTPUT IMPROVES

India's production of cement in the first half of 1972 was about 6 per cent more than that in the first half of 1971, it is learnt. The output of 29 member companies of the Cement Manufacturers Association amounted to 7.91 million tonnes as against 7.45 million tonnes in the first half of 1971. The rated capacity of the Company increased to 9.41 million from 8.94 million tonnes. The average utilisation of capacity increased slightly to 84.1 per cent for the first half of 1972 against 83.3 per cent for the corresponding period of 1971.

As against the installed capacity of 17 million tonnes in 1970 the actual production of cement was recorded at 14.03 million tonnes in that year. In terms of value the production has been estimated at Rs. 1550 million, emerging from 50 units spread throughout the country. The production target by the end of the fourth five year plan (1973-74) has been placed at 18 million tonnes.

To enable the industry to meet the increasing domestic demand of cement, an additional capacity of 9 million tonnes is being created within the next five years.

The cement industry exported cement worth Rs. 20.26 million in the year 1970-71. In the preceding year the exports were effected to the tune of Rs. 16.6 million. During the year, Sri Lanka, Muscat, Nepal, Saudi Arabia and Kenya were the important destinations. In the year 1971-72, cement and cement products worth Rs. 27.93 million were exported. Among the prominent importing countries were Nepal, Muscat, Bangla Desh, Netherlands, Indonesia, Abu Dhabi, Dubai, Sudan etc.

FACTORY TO MANUFACTURE TELEPHONE SWITCH EQUIPMENT

With the planning of national automatic trunk dialing network, it is now necessary to switch over to a more modern system of switching equipment known as crossbar system.

A new factory to manufacture telephone switch equipment will come up in the public sector at Rae Bareilly in Uttar Pradesh. Estimated to cost about Rs. 190 million, the factory will have an ultimate production capacity of 300,000 lines of switch equipment per year. It is expected to start production in the 5th year of its setting up and achieve full capacity in the 9th year.

Besides telephone instruments, the country today manufactures a wide range of telecommunication equipment including automatic telephone exchanges of strowger and crossbar types, electronic multi-channel long distance transmission systems, a variety of telephone instruments, sophisticated equipments for defence services and railways, electronic measuring instruments and other items like road traffic signalling equipment, condensers etc. The ITI, a public sector undertaking in the line, annually manufactures 250,000 telephones and 180,000 line of exchange equipment.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

DEVELOPMENT OF SUGARBEET SEEDS FOR SUGAR PRODUCTION

A new breakthrough in sugar production would be achieved in the country in the coming years as a result of development of high quality seeds of sugarbeet.

A sugarbeet variety in which the sugar content is much higher than the sugarcane, has been successfully produced for the first time in India by the National Seeds Corporation. The new sugarbeet seeds are being distributed among the sugar producing factories having arrangements for producing sugar from sugarbeets.

The new sugarbeet seeds have the advantage of growing in high altitude having cold and dry climate. The first commercial scale production of sugarbeet seeds was taken over an area of 3000 acres in the Kalpa valley near Tibet border in Himachal Pradesh and in the Kashmir valley. The new seed is likely to revolutionise sugar production in the country in the five years.

Many of the South East Asian countries including India are presently importing sugarbeet seeds to meet the increasing demand from the sugar factories. The National Seed Corporation, by eliminating the imports of certain qualities of seeds have been able to save foreign exchange to the tune of Rs. 1,10,000 in the current year. The Ministry of Agriculture of the Government of India and the National Seed Corporation propose to undertake big programmes for large scale commercial production of the sugarbeet seeds.

CHEMICAL POLISHING OF COPPER AND ITS ALLOYS

A new process for chemical polishing of copper and its alloys, has been developed by the Central Electrochemical Research Institute, Karaikudi. The process has been found to be most suitable for even polishing small articles of complicated shape or intricately embossed designs that cannot be ordinarily polished by mechanical means.

The technical know-how developed employs a solution of an alkali metal dichromate and sulphuric acid incorporating an aromatic organic inhibitor containing triazole group. The polishing operation is done in 5 to 60 seconds at a temperature ranging from 30 - 80° C.

The main advantages in the new process are the adaptability of the technique for the continuous operation and also elimination of drying the article before polishing or pre-treatment before lacquering. Besides this, the operating conditions are very flexible and the electrolyte is easily regeneratable.

The process know-how is available for commercial utilisation.

NEW PROCESS FOR CARDAMOM OIL

A process to distil oil from cardamom was evolved by the Central Food Technological Research Institute (CFTRI), Mysore.

The institute after carrying out research on the oil contents of various types of cardamom, developed the process for oil distillation. This process is very important as the cardamom oil fetches heavy price in the international market ranging from Rs. 1000 to Rs. 1500 per kilogram.

India is the largest producer of Cardamom oil in the world contributing about 70 per cent of the total world output. In India, total area under cardamom cultivation has been over 80,000 hectares. It is mostly concentrated in South in the States of Kerala, Mysore and Tamil Nadu.

MINI CENTRIFUGAL PUMP DEVELOPED

A mini centrifugal pump, capable of receiving different impellers has been designed and fabricated by the PSG College of Technology, Coimbatore.

The new developed pump can be run at different speeds. The prototype is in cast iron but when taken up for commercial manufacture, it will be die casted in aluminium and will weigh only 4 kgs. The design of the pump enables it to be mounted directly on a two stroke petrol engine of 1.7 HP running at 6000 rpm now commercially available. Three different impellers are available to develop heads of 7 m., 13 m. and 20 m. This is all in one pump which can be connected either to one inch or 1½ inch diameter G.I. pipe lines.

GEM AND JEWELLERY INDUSTRY

The Gem and Jewellery industry in India which dates back to times immemorial uses various kinds of precious and semi-precious stones as well as costly metals like platinum gold and silver. The industry provides one of the most remarkable examples whereby inherited skills and traditional craftsmanship of Indian artisans are converted into valuable foreign exchange earning for the country. The simplest tools are employed by the industry to create exquisite works of art representing the best and highest traditions which find ready acceptance in international markets.

Golconda diamond mines, once know all the world over for high quality diamonds are now exhausted. Today, Panna mines in Madhya Pradesh and the Wajra-Karur fields in Andhra Pradesh provide rough diamond of gem quality and for industrial uses. The diamond deposits at Panna mines in Madhya Pradesh are estimated at about 3 million carats. The development of mining is looked after exclusively by the National Mineral Development Corporation.

The output of diamonds during 1970-71 was of the order of about 19,000 carats as against 15,470 carats in 1969-70. In 1968-69 it was only 7450 carats.

The Diamond-mining Project at Panna in Madhya Pradesh is presently operating two schemes : one at Ramkheria for yearly output of 11,250 carats and the other Majhgawan for an annual output of 12,000 carats. The latter scheme in intended to expand the production capacity to 45,000 carats eventually. Besides a new belt, 180 meter in diameter has been located near Majhgawan. In Andhra Pradesh the diamond investigations commenced in mid-1968 and were till recently confined to the conglomerate deposits in Kurnool district. Some area in Anantpur district has also been taken up for development.

In Ajmer and other parts of Rajasthan, fine semi-precious stones including garnets are mined. Rubies, acquamarine, amethyst and other semi-precious stones have been located in Mysore and Andhra Pradesh. Area surrounding Kangayam and Karur in Tamil Nadu is the chief centre of gem stones including amethyst, acquamarine and blue sapphire. Emeralds deposits were first found at Kalguman in Rajasthan in 1943. Since then mining has been undertaken with encouraging results. Kyaudin and Soomhani in Kashmir are considered to be the best sources for sapphires. The famous Indian star ruby and green aventurine are produced in Mysore. Sythetic gem stones are produced in Tamil Nadu.

The industry's cutting and polishing centres are located at different places for various types of precious and simi-precious stones. Diamond cutting industry in the country bad its origin in Panna and Varanasi. Today, Surat and Navsari in Gujarat are more famous centres for cutting and polishing of diamonds in India. The industry employing about 25,000 workman, offers a large variety of cut and polished diamonds in various shapes and sizes. The Villandi cut which is popular in Iran and other Middle East countries is a speciality of the Varanasi cutters. The lapidaries in Surat, Navsari and Bombay produce Single cuts, Brilliant cuts, Baguette and Marquise and also proeess other fancy shapes.

Rajasthan is famous and all the world over as the finest cutting centre for emeralds mined in the Udaipur and Ajmer districts of that State. Cambay in Gujarat well known for unique cutting of rubies and sapphires while Tiruchirapalli and Madras are known for cutting rubies and synthetic and semi-precious stones of all kinds. Besides, Patdhari Varanasi, Cuttack, Lucknow, Calcutta, Kashmir, Agra and Moradabad are all famous for esquisite silver filigree work. Ajmar, Hyderabad, Cambay, Jaipur, and Rajpipla are the prominent centres for cutting semi-precious stones. Bombay and Jaipur cities are interationally famous for their position as world trade centres of gem-stone in bulk. Bombay and Surat almost hold a monopoly in treating, trading and exporting of pearls. About 5,000 artisans are engaged in this sector of the industry. They work both on real and cultured pearls. Bombay is also known for manufacturing precious metal jewellery studded with diamonds, precious stones and pearls. The cutting and polishing of rough/synthetic stones is largely carried on Tiruchirrapalli in Tamil Nadu and to some extent at Jaipur.

Efforts are being made to further improve the production of the industry. The National Mineral Development Corporation is exploring indigenous sources of gem stones and diamonds. Similarly, the Gem and jewellery export Promotion Council, Bombay, has a number of development programes on hand to give filip to the industry. The Council has already succeeded in setting up a Gem Testing Laboratory at Jaipur. A scheme to set up a training school for artisans at Surat for teaching the latest techniques of cutting and polishing diamonds is also under implemention. The Gem and Jewellery Export Promotion Council also lately sent a composite sales cum study team to visit various countries to asses and explore the potentialities for steppings up exports of Indian gems and jewellery items to West European countries, U. K. U.S.A. and South East Asian countries including Japan. The Council has also been successfully endeavouring to procure regular supplies of rough diamonds of at standard qualities to local producers direct from the Diamond Trading Company of London.

Besides, supplies from domestic resources for precious stones, India is also importing annually large quantities of rough stones from abroad. The National Mineral Development Corporation has been entrusted with import of rough diamonds for providing raw material to the artisans engaged on the cutting and polishing of diamonds in the country for the purpose of re-export in finished from. Emeralds are mainly imported from Columbia, USSR and South Africa while Rubies are supplied by Burma. Sapphires come mostly from Ceylon.

India's Gem and Jewellery industry is one of the important export oriented industries in the country.

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From Rs. 100 million in 1965-66, the exports increased to Rs. 374.75 million in 1970-71 and Rs. 473.57 million in 1971-72. Of the total exports during 1971-72 and 1970-71, the share of diamonds was Rs. 374.40 million and Rs. 278.57 million respectively; precious/semi-precious stones Rs. 84.81 million and Rs. 78.42 million; pearls Rs. 5.65 million and Rs. 9.56 million; gold jewellery Rs. 2.80 million and Rs. 2.08 million; non-gold jewellery Rs. 5.06 million and Rs. 5.28 million and synthetic stones Rs. 0.86 million and Rs. 0.83 million. The export target for gems and jewellery for 1972-73 has been fixed at Rs. 480 million.

During 1971-72, Belgium, Hong Kong, Japan, Netherlands, U.K., U.S.A. and Israel were the major buyer for cut diamonds while U.S.A. was the chief purchaser for uncut diamonds. During the same year Belgium, U.S.A., U.K., France, West Germany, Switzerland, Hong Kong, Japan, Thailand, Australia, Austria, Czechoslovakia, Lebanon, Nigeria, Yugoslavia were the chief importers for precious and semi-precious stones. During the period, Hong Kong, France, West Germany, Switzerland emerged as the chief buyers for natural, unworked pearls while U.S.A. and Hong Kong absorbed major portion of natural worked pearls. Supplies of gold jewellery were directed mainly to Czechoslovakia, Fiji Islands, USA, Abu Dhabi, Kuwait, Hong Kong etc. ☐

"Though the Indian economy has faced many ups and downs and passed through many crises, it does give us some satisfaction to realise that over the past 25 years, per capita income in India has gone up by 50 per cent in real terms.

But it continues to be among the lowest in the world. So, if anything, we have to redouble our efforts for growth. At the same time, we have learnt that growth is not enough. Without conscious efforts to promote social justice, one can have a high state of growth without any improvement in the life of the poorer sections of the community and least developed areas of the country. In our next Five Year Plan, we are going to adopt special measures to stimulate economic activity of a kind specially beneficial to the poor.

In our endeavour to wage a war against poverty, we have benefited from the cooperation of the world community even while we have sought to maximise reliance on our own resources - technical, material and financial. During the last 25 years, nearly 80 per cent of the development resources were raised from within the economy. Currently, more than 90 per cent of our investments are financed by domestic resources and foreign aid contributes hardly 8 per cent".

(Excerpts from India's Finance Minister's recent address at the celebrations of Twenty-fifth Anniversary of India's Freedom at Washington).

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EXPORT OF RUBBER MANUFACTURED PRODUCTS

Besides automobile tyres and tubes, export of other rubber manufactured products from India has also been improving from year to year. The export value of these products is estimated to have improved to Rs. 47.50 million in 1971-72 from Rs. 41.58 million in 1970-71 and a mere Rs. 37.49 million in 1969-70. A wide range of rubber manufactured products is active in export trade, including rubber footwear, cycle tyres and tubes, rubber hoses, surgical appliances, rubber balloons, auto parts, rubber beltings, rubber oils seals, etc.

Among the prominent exporters of these goods in India, Bata Shoe Co. Pvt. Ltd., 30, Shakespeare Sarani, Calcutta–16, improved their export performance for rubber footwear from Rs. 18.69 million in 1970-71 to Rs. 21.97 million in 1971-72. Similarly the Carona Sahu Co. Ltd., Fort House, 221, Dr. D. N. Road, Bombay–1, were also able to enhance their export performance from Rs. 1.21 million to Rs. 3.14 million in 1971-72. M/s. Prince Rubber Industries, Punjab, also registered a marginal improvement in supply of their rubber footwear to Nepal from Rs. 102,500 in 1970-71 to Rs. 131,600 in 1971-72. Besides, in near markets like Sri Lanka, Nepal, Syria and Zambia, Indian rubber footwear are popular in distant countries like U.K., France, U.S.A., Bulgaria, West Germany, Holland, Canada, etc.

A number of units engaged in the manufacture of cycle tyres and tubes have also been able to improve upon their export performance of cycle tubes and tyres during 1971-72. The export supplies of these items effected by M/s. Dunlop India Ltd., 15, Chittaranjan Avenue, Calcutta-16 increased to Rs. 4 million during the year registering an increase of about Rs. 4,00,000 over the preceding year's performance. They exported cycle tyres and tubes and rubber solution etc. to a number of countries including Yugoslavia, Singapore, Thailand, U.K., Mauritius, U.S.A., Indonesia, Arab Republic of Egypt, etc.

Another exporter in the line, M/s. Mercury Export Agencies, Bombay, exported bicycles tyres and tubes worth Rs. 202,500 to Nigeria. This is singificant considering that during the preceding year, the firm had no export performance to its credit. Export supplies valued at Rs. 6,68,700 were also effected to Tanzania, Sudan, Malawi, Zambia, Iraq, Kenya, Nigeria, Ethiopia, etc. by M/s. Metro Exporters Pvt. Ltd., Shah House, Shiv Sagar Estate, Bombay–18. The exports effected by the firm during 1970-71 amounted to Rs. 600,000.

Among other exports of rubber manufactured products, M/s. Indian Rubber Regenerating Co. Ltd., Kamani Chambers, Nicol Road, Ballard Estate, Bombay-1, supplied reclaimed rubber to Iran, Malaysia, Syria, Kenya, Lebanon, etc., while M/s. Royal Trading Co., Anand Bhavan, Gandhi Marg, Bombay-2, exported rubber balloons to Sudan, Kenya, and Mauritius. Some supplies of rubber hoses were made to Nigeria by M/s. Greaves Cotton and Co. Ltd., 1, Forbes Street, Bombay-1.

The growth of rubber goods industry is reflected by the consumption of rubber in the country. India stands eighth among the rubber consuming countries in the world. Consumption of rubber which was of the order of 61,000 tonnes consisting of 48,150 tonnes of natural, 7,400 tonnes of synthetic and 5,453 tonnes of reclaimed in 1960-61, rose to 95,092 tonnes in 1965-66 with 68,685 tonnes of natural, 21,553 tonnes of synthetic and 9774 tonnes of reclaimed rubber. In 1969-70, total consumption by the using industries was 130,734 tonnes made up of 86,213 tonnes of natural, 30,636 tonnes of synthetic and 13,885 tonnes of reclaimed rubber. During 1970-71, consumption amounted to 87,237 tonnes of natural rubber, 33,160 tonnes of synthetic rubber and 18,348 tonnes of reclaimed rubber, thus making a total of 134,745 tonnes.

Including automobile tyres and tubes industry, there are over 1400 rubber manufacturing units spread over in many parts of the country and the total production of rubber goods is estimated to be about Rs. 33,100 million. The Industry directly employs more than 100,000 people.

The estimated total production of rubber in the country during 1971-72 was 134,000 tonnes of which natural rubber accounted for 101,000 tonnes and the rest was synthetic rubber.

CABLES AND WIRES IN EXPORT TRADE

Export trade in cables and wires has been active in India during recent years. The export earning was of the order of Rs. 111·2 million in 1969 70, Rs. 113.2 million in 1970-71, and an estimated Rs. 105 million in 1971-72. The target for 1972-73 has been placed at Rs. 130 million by the Engineering Export Promotion Council, Calcutta.

Of the total export value of cables and wires during 1971-72, insulated wire cables alone accounted for Rs. 51.73 million. U.S.S.R. with an intake worth about Rs. 12.40 million was the major buyer during the year.

M/s. Aluminium Industries Ltd., Kundara succeeded in exporting cables worth Rs. 2.1 million to U.S.S.R. The Company is an Export House recognised by the Government of India. It has a number of divisions including the Machinery Division at Hyderabad, Switchgrear Division at Raunar and the Consultancy Division at Madras - all engaged in a keen programme of product diversification with an export angle.

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TEXTILE MACHINERY ON EXPORT FRONT

The exports of textile machinery from India were affected to as many as 47 countries of the world during the year 1970-71. In that year, the machinery to the tune of Rs. 55 million was exported. The prominent destinations were the Arab Republic of Egypt accounting for Rs. 42.35 million, followed by Indonesia with an intake worth Rs. 2.24 million. The other importing countries included Thailand and Sri Lanka whose intake values were worth Rs, 1.68 million and Rs. 1.23 million respectively.

During 1971-72 the export value was of the order of Rs. 49 million. The prominent importing countries during the year included Arab Republic of Egypt, Uganda, German Democratic Republic, Ethiopia and Iran.

Adding to the export effort M/s. Swastik Textile Trading Company Private Limited, Motilal Haribhai Market, Railwaypura, Ahmedabad, engaged in the manufacture of textile machinery, exported wet processing machinery, spare parts and accessories to overseas markets to the tune of Rs. 1.75 million during the year 1971-72.

The licenced and installed capacities, in respect of major items of textile machinery are placed at Rs. 670 million and Rs. 470 million per annum respectively. During 1970, the actual production was recorded at Rs. 260 million as against Rs. 197 million in 1969. Besides, in 1970 the value of spares and accessories produced was estimated to be around Rs. 250 million.

India manufactures a wide range of textile machinery from blow room lines to carding engines and from high speed draw frames, fly frames and ring frames to doublers, completing thereby the need of the preparatory departments and spinning departments of the textile mills. Besides, pirn winders, cone winders, sizing machines, power looms, automatic looms, wet processing machines of all types, bleaching plants, singeing machines, dyeing equipment, padders, open width washing machines, finishing equipment, baking machines, printing machines and many other ancillary equipment required by the dye houses.

BOOST IN EXPORTS BY STATE TRADING CORPORATION

The export supplies effected by the State Trading Corporation (STC) recorded an increase of Rs. 100 million during the first six months of 1972-73 (April-September 1972) over these of the corresponding period in the preceding year. The export earning of the corporation during 6 months of the current year amounted to Rs. 380 million as against Rs. 280 million during the corresponding period of the previous year. This represents an increase of 35 per cent.

Among the new orders recently secured by the STC are the orders for castor oil, shoes and coffee. So far, the Corporation has exported castor oil worth Rs. 21.6 million to U.K., Japan, Australia and the USA. Contracts on hand are worth Rs. 10.20 million. The Corporation expects to export castor oil worth Rs. 50 million during the entire current year.

Recently the STC has signed contracts for supply of shoes worth Rs. 30 million to USSR and Rs. 1.3 million worth to Poland. The total contracts on hand for the supply of leatherware to USSR and other countries amounts to Rs. 156 million. Negotiation are also going on for additional supplies of chappals and sandals to USSR.

Recently the Corporation also finalised a new contract with Sudan for supply of jute worth Rs. 40 million. It is also planning to export jute manufactures to non-traditional areas. In keeping with its policy of introducing non-traditional items to new markets and the traditional ones to non-traditional areas' the STC has secured an order amounting to Rs. 7.5 million for supply of vaccum flasks to the USSR.

With the exports already touching Rs. 380 million, for export of vacuum flasks has also been the STC expects to achieve an export target of Rs. 920 million in 1972-73 as against the total exports of Rs. 786 million last year.

New markets for Indian sports goods, coffee, tea, readymade garments, woollen knitwear and art silk fabrics are being developed by the Corporation. The target for export of woollen knitwear has been fixed at Rs. 135 million and for art silk fabrics Rs. 55 million.

COTTON MANUFACTURES IN EXPORT TRADE

Indian exports of cotton manufactures (excluding yarn and thread and clothing) recorded an increase of Rs. 25.77 million during 1971-72 over the export value of 1970-71. The export earnings during 1971-72 were recorded at Rs. 1000.43 million as against Rs. 974.66 million during the preceding year.

During the year a wide range of items were exported to a large number of overseas countries. The prominent among these are : Dhoties, lungies, sarees, shirtings, coloured bleeding Madras, coloured real Madras handkerchiefs, cotton guase unbleached, bedticking unbleached, canvas carded yarn, canvas combed yarndrilled unbleached, furnishing cloth unbleached longcloth unbleached, parachute cloth unbleached, sheeting card yarn and combed yarn, shirting card yarn and combed yarn, twill satin card yarn and combed yarn, umbrella cloth, cotton gauze bleached, terry fabrics bleached and printed, terry fabrics yarn dyed, mulls, muslin, poplin broadcloth, voils, flannelitte, furnishing cloth, poplin broadcloth, coating suiting, sarees handprinted, other cotton fabrics handprinted, other woven cotton fabrics, other knitted fabrics, tule lace embroidery ribbons, trimmings and other small wares of cotton, manmade lace fabrics, special fabrics of cotton and related products, wicks and gas mantles fabrics, bags and sacks for packing, tarpaulins tents, travelling blankets, rugs, cotton waste blankets, coverlets, bed sheets, handloom napkins, pillow cases, table cloth covers, handloom towels, bedlinen of cotton, curtain cloth, made up mosquito nets, floor coverings, tapestries of cotton, handloom and knotted carpets, handloom durries, etc.

Dubai, South Yemen Republic, Singpore, Sri Lanka, were the important destinations for lungies while Mauritius, Singapore, Sudan, Nepal, Kenya, Behrein Islands etc. were the important markets for Sarees. Shirtings were absorbed in Sudan, Mauritius, Japan, U.K., Cameroon etc. Sudan, U.K., Sweden, New Zealand, Trinidad etc. were the major importing countries for Bedticking (unbleached) while sheeting card yarn were exported to New Zealand, U.K. U.S.A., Federal Republic of Germany, France, Australia, Italy, Sudan, Sweden and many other countries. Bleached longcloth was mainly imported by Australia, Sudan, Sri Lanka while mulls were mostly absorbed in Sudan, South Yemen Republic, U.K. and Saudi Arabia. Sudan emerged as the main market for voils followed by Dubai and South Yemen Republic. For other important items, the destinations were : U.S.S.R., Rumania, Sudan for furnishing cloth; Sudan and U.K. for poplin broadcloth; U.K., Netherlands and Canada for bags and sacks for packings; Muscat, Kuwait, Dubai, and Burma for Tarpaulin tents; Sri Lanka, Trinidad, New Zealand, Sudan for cotton waste blankets. The bedsheets were mostly imported by U. S. A., U. K., Zambia, Sudan and Windward Islands, Federal Republic of Germany, Norway, Nigeria, Sweden, U.K., U.S.A., and Zambia. U.K. was the major market for Handloom Napkins while U.K., U.S.S.R., Sweden. Federal Republic of Germany, Kenya, South Yemen Republic etc. were the prominent importing countries for pillow cases. Towels were mainly imported by U.K., US A., U.S.S.R., Rumania, New Zealand etc. U.S.A, U.S.S.R., Sweden were the main destinations for curtain cloth while handloom durries were imported by Saudi Arabia, Kuwait, U.S.A., U.K., Mauritius, etc.

M/s. Birla Cotton, Spinning and Weaving Mills, Subzi Mandi, Delhi, the firm engaged in the manufacture and exports of cotton fabrics and other products in the line, have succeeded in exporting these products to overseas countries to the tune of Rs. 6.7 million during the year 1971-72. In fact, this was the record figure in their exports which outstripped their preceding year's export performance by a sharp margin of Rs. 1.2 million. Their textile Mills at Delhi have diversified their product range to include synthetic cotton blended fabrics and fine fabrics.

EXPORT PERFORMANCE AND POTENTIAL

OVERSEAS DEMAND FOR PERFUMED MATERIALS

Most of the categories of perfumed materials including essential oils, perfumery and cosmetics and soaps and cleansing preparations are active on export front. That the world consumers have recognised the quality of these exports can be seen from the fact that their exports rose from Rs. 71.27 million in 1970-71 to Rs. 86.38 million in the following year. Of these exports, essential oils, perfumes and flavoured materials witnessed an improvement from Rs. 38 million to Rs. 39.26 million. The export of perfumery and cosmetics, dentifrices and other toilet preparations also improved from Rs. 23.72 million to Rs. 31.94 million. The offtake of soaps, cleaning and polishing preparations rose from Rs. 9.49 million to Rs. 15.18 million.

Essential oils and resinoils alone netted foreign exchange to the tune of Rs. 38.91 million in 1971-72. Sandalwood oil is the most important item of export in this line. Its exports in the year fetched Rs. 26.10 million. U.S.A. absorbed this oil worth Rs. 7 million while France imported to the tune of Rs. 3.8 million, U.S.S.R. Rs. 2.9 million, U.K., Rs. 2.6 million, Switzerland Rs. 1.6 million, Sudan Rs. 1.4 million and Japan Rs. 1.5 million. Lemon grass oil was also supplied overseas in substantial quantities (0.26 million kg.), at a value of Rs. 7.9 million. U.S.S.R. imported worth Rs. 14.6 million while U.K. Rs. 11.3 million. Palma Rosa oil was mainly supplied to U.S.A., France and German Federal Republic. The total exports of this oil were Rs. 1.7 million in 1971-72. Among other essential oils exported were ginger oil, pepperment oil and vetiver oil.

Synthetic perfumes and flavours exports included attar, extracts of aromatic chemicals, rose wood and aqueous distillates. These products fetched Rs. 0.35 million.

In the group of perfumery, oil cosmetics and dentifrices, the major varieties exported are agarbattis. These were supplied to about 90 countries to earn Rs. 14.12 million. The major markets, however, were the U.S.A., Singapore, and Ethiopia. U.S.A. imported worth Rs. 4.10 million while Singapore purchesed agarbattis at a value of Rs. 1.2 million and Ethiopia Rs. 1.4 million. Face-cream, hair-cream, toilet oil, hair shampoos, both spirituous and non-spirituous, face powder, talcum powder, tooth powder, tooth paste and perfumes are the other products supplied in this line. Hair oil for instance was exported to the level of Rs. 1.8 million to Dubai, Kuwait, U.S.A., Muscat, Tanzania and U.K. at the important buyers. Face powder netted Rs. 1.7 million with U.S.S.R. having purchased Rs. 1.65 million worth. Talcum powder fetched Rs. 1.35 million and Malaysia, Hungary, Nigeria, Seychelles, Singapore were the major buyeys.

In the line of soaps, cleansing and polishing preparations, soaps alone were exported to the tune of Rs. 6.44 million. Toilet soaps (other than den soaps) fetched Rs. 2.25 million of which Nepal alo absorbed about Rs. 1 million. Bar soaps flak cakes, medicated soaps, household laundry soaps we the other important products exported.

Synthetic detergants constitute another important li of export. Their export earnings were Rs. 8.35 millio U.S.S.R. alone absorbed worth Rs. 7.25 million. I the same year, the quantity of Soviet purchases was c the order of 2.85 million kgs. as compared to the tota quantam exported at the level of 3.78 million kgs.

MEDICINAL AND PHARMACEUTICAL PRODUCTS

Export business of medicinal and pharamaceutica products has brightened in 1971-72 compared to the previous year's. The export value was of the order o Rs. 87 million as compared to Rs. 84.65 million in 1970-71.

Antibiotics constitute an important category of these products. They earned foreign exchange worth Rs. 10.18 million in 1971-72. Oxyteracycline preparation was a single item of export significance having netted Rs. 4.45 million in the year. Hong Kong and U.S.A. were the major importers. Streptomycin and preparations were also supplied abroad in substantial quantities at a value of Rs. 2.35 million. Saudi Arabia, Arab Republic of Egypt and Hong Kong were the leading buyers. Chloramphenicol and preparations, penicillin and preparations and other antibiotic preparations, are also prominent in the export list.

Vitamins including nicotinic acid, Vitamin B_2, Vitamin B_{12}, Vitamin B Complex were supplied mainly to U.S.A., German Federal Republic, U.K. and Malaysia. Opium, cocaine, caffein, quinine and other vegetable alkaloids and derivatives form another important area of medicinal exports. Together they were supplied abroad to a level of Rs. 11.84 million. In this group, cinchona alkaloids were mainly supplied to Czechoslovakia and Romania. Japan imported ephedrine hydrochloride. Various salts and derivatives of ergot, alkaloid, emetine, nicotine, and quinine are the other areas of export in the category.

Salts and derivatives of quinine, for instance, were mainly purchased by U.S.S.R. Bulgaria accounts for the best portion of their exports in the year to the tune of Rs. 4.8 million. It was also the most important purchaser of quinine sulphate whose total exports are Rs. 2.7 million.

In the group of hormones, digoxin was supplied to U.S.A. while blood plasma and liquid extract liver was mainly purchased by Australia, Italy and U.S.A. Vaccines for cholera, tuberclin, yellow fever, etc. were also exported.

Of the overall medicinal and pharmaceutical exports, medicaments are the foremost area. Ayurvedic and Unani medicines were exported to fetch Rs. 1.19 million. Sri Lanka, Kenya and Nepal, were the major buyers. Acetysalcylic acid was bought by Kenya, Sir Lanka and Thailand. Antibiotic drugs made in India received good demand from Australia, Japan and Brazil.

Pharmacy goods are yet another important category of exports. Their exports fetched Rs. 4.4 million in 1971-72. These exports include adhesive bandages, medicated lint, plaster of Paris, dental cement and other dental fillings as well as styryl surgical catguts.

EXPORT EARNINGS OF LEATHER PRODUCTS IMPROVE

From Rs. 721.82 million worth of foreign exchange earned by leather and leather manufactures in 1970-71, the year that followed witnessed a sizeable uptrend in their export growth to the level of Rs. 907.66 million. Leather export alone improved from Rs. 715.88 million to Rs. 901.42 million.

In the group of leather a wide variety of products have come to say in the export markets. Unfinished buffalo and calf skins both vegetable and chorme tanned were exported to the tune of Rs. 43.69 million. U.K., the traditional importer, absorbed as much as Rs. 24.69 million worth of vegetable tanned variety. Italy and Yugoslavia were the next best markets for the same. Italy again was the major market for the chrome tanned variety followed by U.K., Yugoslavia and Bulgaria. Vegetable tanned cow and calf skins were principally exported to U.K. (Rs. 22.37 million). The export earning was Rs. 22.82 million.

Other cattle hides of the bark tanned category have also picked up export sales to the value of Rs. 27 million of which U.K., alone absorbed Rs. 70 million worth. Other cattle hides in unfinished chrome tanned form were supplied to Bulgaria mainly (Rs. 6.13 million) followed by France (Rs. 2.10 million). Italy imported more than half of the chrome tanned, buffalo hides including katai. Among other leather categories exported were bark tanned, linings of sheep and lamb skins, finished leather of sheep and lamb (vegetable tanage), chrome and semi-chrome sheep sueds, unfinished and chrome tanned and sheep and lamb skins, bark tanned goat and kid skins, goat linings, glazed kids, snake skins and lizzard skins. Rs. 12.32 million worth of chrome tanned sheep and lamb skins were exported mainly to U.K., U.S.S.R., Japan, France and Rumania. Rs. 184.42 million worth of world market was captured by unfinished and vegetable tanned and sheep lamb skins which were exported among others to Italy (Rs. 38 million), Japan (Rs. 27 million), France (Rs. 27 million), Belgium (Rs. 13 million), U.K. (Rs. 33 million) and Netherlands (Rs. 8 million). The bark tanned unfinished goat and kid skins fetched in the year (1971-72) Rs. 312 million of which Italy imported worth Rs. 72 million, German Federal Republic Rs. 42 million, U.S.S.R. Rs. 33 million, U.K. Rs. 28 million, U.S.A. Rs. 11 million, France Rs. 30 million and Belgium Rs. 16 million. The chrome tanned goat and kid skins were also popular abroad and their exports in the year amounted to Rs. 186.7 million. U.S.S.R. absorbed worth Rs. 127.5 million. Czechoslovakia, Italy, German Democratic Republic and Poland are the major markets.

Glazed kid exports were of the order of Rs. 10 million. U.S.A. imported nearly one third of the total supplies alone. Italy, U K. and France were the other principal purchasers. Snake skins exports totalled Rs. 2.43 million worth. German Federal Republic, U.K., Spain and Italy were the principal buyers.

Leather manufactures of artificial or reconstituted leather fetched foreign exchange worth Rs. 8.65 million in the year reviewed. Leather pickers, having open strips, leather belting, saddlery and other harness makers goods, leather soles and leathe uppers, leather strips etc. were the prominent products supplied in this line. In addition to the above categories of leather product exports, footwear was supplied by India to the level of Rs. 117.59 million as compared to Rs. 114.40 million in 1970-71. All leather closed toe footwear netted worth Rs. 30.25 million. Of this, U.S.S.R. imported worth Rs. 38.82 million followed by Nepal worth Rs. 1.2 million and Canada worth Rs. 1 million. Leather open toe footwear fetched Rs. 29.60 million. Here again U.S.S.R. imported worth Rs. 1.7 million while U.S.A. was, however, the more important market at Rs. 16.93 million. Australia (Rs. 3.64 million), Canada (Rs. 1.24 million) and U.K. (Rs. 1.32 million) were the other important buyers. Rubber soled upper canvas footwear and leather soled upper leather footwear were exported to the levels of Rs. 30.30 million and Rs. 15.29 millon respectively. The canvas footwear was mainly imported by U.K. (Rs. 10.35 million) while the leather variety was purchased by U.S.A., U.K. and Canada in that order.

BOOST IN TOBACCO EXPORT

India's exports of tobacco and tobacco manufactures during 1971-72 recorded an increase of Rs. 125.19 million (38 per cent) over the export performance in the preceding year (1970-71). The foreign exchange earning in 1971-72 was Rs. 450.8 million as against Rs. 325.61 million in the previous year.

During 1971-72, unmanufactured tobacco netted Rs. 422.46 million as against Rs. 313.98 million in the previous year while tobacco manufactures earned foreign exchange worth Rs. 28.34 million as against Rs. 11.64 million.

In the category of unmanufactured tobacco, virginia flue cured tobacco constituted the main single export item accounting for Rs. 394.87 million (49422 tonnes). U.S.S.R. emerged as the major buyer whose intake was worth Rs. 152.82 million (18,808 tonnes) followed by U.K., Rs. 148 million (16,450 tonnes), Japan Rs. 38.57 million (3996 tonnes), Czechoslovakia Rs. 19.28 million (2151 tonnes), Ireland Rs. 9.8 million (979 tonnes), Arab Republic of Egypt Rs. 6.94 million (699 tonnes) and German Democratic Republic Rs. 2.77 million (864 tonnes). Libya, Singapore, Indonesia, Belgium, Malaysia and France were the other prominent destinations. Tobacco for chewing was exported to the tune of Rs. 10 million (3404 tonnes). Somalia was the prominent importing country whose share was of the order of Rs. 16.25 million (2147 tonnes). South Yemen Republic, Saudi Arabia, Isreal, Singapore and Yemen Arab Republic etc. were the other markets for chewing tobacco. Virginia Sun Cured variety netted worth Rs. 7.38 million (917 tonnes) while Sun Cured Natu Country fetched Rs. 4.52 million (719 tonnes). Besides these items, the unmanufactured tobacco for bidis, cheroot and cigars, hookah tobacco and other varieties were prominent in earning foreign exchange.

In the category of manufactured tobacco, Cigarettes was the principal item which netted as much as Rs. 15.70 million. Among the principal importing countries, U.S.S.R. was the main buyer accounting for Rs. 14.96 million, followed by Hungary, Bahrein Islands, Mauritius, Saudi Arabia, U.K. and Somalia. Hookah Tobacco was exported to the tune of Rs. 6.84 million while manufactured tobacco earned Rs. 3.85 million. The export value was recorded at Rs. 1.6 million for cigars, cheroots and bidis. Chewing tobacco, scented jerda tobacco, snuff etc. were the other items of export during the year under review.

CARD RECORDER MACHINES ON EXPORT STREAM

Besides meeting the demand of the domestic market, Indian electronics industry is making steady progress in the export field. Exports of electronic goods in the year 1970-71 were recorded at Rs. 75 million as against Rs. 50 million in the preceding year. In the field of card recorder machines export, the industry is expected to make considerable progress as these machines are being manufactured in the country exclusively for export purpose. These sophisticated machines manufactured in India are presently being used in more than 40 countries of the world including some industrially advanced nations.

India's first IBM 129 card recorder was exported to Australia in October this year. The IBM machine is the latest machine for punching and verifying data for modern computors. India is one of the four countries of the world producing this sophisticated item. These machines are presently being manufactured for export. Besides these, IBM 029 and Date Input Device are also being exported. Presently two firms are engaged in the manufacture of computers in the country.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

BOMBAY TV STATION GOES ON AIR

The second major Television Centre in India was commissioned as the Bombay TV Center went on air on 2nd October, 1972.

Coming after more than ten years of experimentation with this medium of mass communication in New Delhi, the Bombay station comprises TV studio and Transmitter at Worli and relay transmitter at Sinhagarh, near Poona. The television station at Worli (Bombay) will reach viewers in an area of 13,500 sq. Km. The relay transmitter at Sinhagarh will enable viewers in Poona to tune in to the telecast from Bombay whose coverage will be extended by an additional area of 23,000 sq. Km. The total population covered by this media will be about 14 million. When the television expansion programme in India is completed by the end of the Forth Five-Year Plan, about 40 million people of India would be covered by television programmes. Of this, more than 50 per cent people would be from rural areas.

The Bombay television station's ultra-modern 10 kw. transmitter can be used for colour telecasts later without any alteration. This is a significant advantage as colour television may be introduced in the country in the early 1980s. The know-how is being developed by electronic engineers in the country to avoid paying foreign collaborators large fees in terms of royalty.

Bombay may also be earlier than New Delhi in dispensing with the usual television antennae that now protrude from housetops, Television owners will subscribe towards a neighbourhood antenna from which underground cables will feed the programmes to the individual television sets, in much the same manner as domestic water lines take off from main pipelines laid along the roads.

According to present indications, Srinagar will have its television station in operation by the end of 1972. The transmitter at Amritsar will relay and telecast "canned" programmes from January, 1973.

It is also envisaged to extend the range of telecast from New Delhi by setting up a relay transmitter at Mussoorie in 1973-74.

The Madras television station is expected to be commissioned in January 1974. Calcutta and Lucknow television studios will also begin to telecast programmes in March 1974. A relay transmitter at Kanpur will extend the range of Lucknow station's transmission in the same manner as the Sinhagarh transmitter near Poona.

Television transmission from Calcutta will be made available to the Durgapur and Asansol regions by setting up two "off air" relay transmitters which will cover the Midnapur and Kharagpur areas too. These extend the range of Calcutta TV to a total of 40,000 sq. km., reaching 16 million people.

According to persent plans, in early 1975, Indian scientists will undertake a 12-month experiment with the ATSF satellite of the united States National and Aeronautical and Space Administration for satellite-based television coverage. Indian scientists hope to develop an indigenous satellite by early 1982s on the basis of the knowledge and experience gained in the intervening period.

FIRST BLAST FURNACE COMPLEX OF THE BOKARO PLANT COMMISSIONED

The first blast furnace complex of the Rs. 7580 million Bokaro Steel Plant was commissioned early this month by the Prime Minister of India. The plant will be among the largest 20 plants in the world. The foundation stone of the furnace was laid in April 1968.

The production capacity of the plant is estimated to be of the order af 2640 tonnes of foundry grade iron.

With the commissioning of the first blast furnace complex, the Bokaro plant enters the first production stage of 1.7 million tonnes that would go upto 2.5 million tonnes by 1975 and upto 4.75 million tonnes by 1976 The first stage of the plant would cost about Rs. 6600 million and another Rs. 300 million would be required for expansion. U.S.S.R. would be the first importing country to absorb pig iron produced at the plant at a value of Rs. 90 million. This can be said to almost a completely indigenous plant as only 14 per cent of its equipment would have been imported at the final stage.

D.M.T. PRODUCTION COMMENCES

M/s. Gujarat Atomatic Project is to produce Dimethyl Terephthalate known as DMT by the end of the current year. The Indian Petro-Chemicals Ltd., which primarily is supposed to engage in the production of a petro-chemical building blocks will have to manufacture a variety of petro-chemical products. Several of such products will be manufactured for the first time in the country.

It is envisaged that as a result of production of petro-chemical products in the plants of IPCL, a considerable annual saving in foreign exchange would be achieved. This estimate of foreign exchange saving does not include the foreign exchange saving arising out of products manufactured out of the products of IPCL.

Besides, a substantial amount of savings would be achieved by way of considerable saving of traditional and scarce raw materials such as steel, copper, wood, etc. These materials would be released for better alternative uses.

INDIA'S INDIGENOUS DESK CALCULATOR

India's first calculator, wholly designed by Indian technicians has been produced by the Delhi Cloth Mills group recently. It is a 2.8 kgs. desk calculator known as 'Moscal-1400'. The developed calculator will have an indepenent accumulative memory. Besides having all the qualities of the conventional calculators being produced indigenouly, the 'Moscal-1400' is capable of doing addition, substraction, multiplication, division, squaring, square rooting, sequential calculations and negative number entries.

Out of India's annual requirements of 20,000 calculators, the Delhi Cloth Mills have a capacity of producing 2000 numbers annually. The import content of the developed calculator has been estimated at only 10 per cent of its total cost.

The Delhi Cloth Mills have also to their credit the fabrication of programmable calculator. This calculator is capable of having many intricate and complex calculations. It, therefore, possesses wide applicability in a wide range of industries such as engineering industry, banking industry agriculture industry etc. This calculator has special capablity of evaluating logarithms, square root, expotentials and percentage operation. With two independent accumulative memories and many other facilities, it can be used for add on or discount operations and many other problems in fixed point or floating point modes.

The new electronic wing of the Delhi Colth Mills has further plans to manufacture calculators with more memories, programmable and scientific calulators, accounting and invoicing machines, cash registers and printer calculators, Besides, plans to enter the field of digital instruments and data communication system are under consideration.

INDIA'S PROGRESS LAUDED BY SWEDISH INTELLECTUALS

At an India evening organised in Stockholm by the Embassy of India, Prof. Gunnar Myrdal stressed the admirable progress made by India during the last 25 years inspite of serious difficulties and especially mentioned the events on the Indian sub-continent last year when India "earned the whole world's respect and admiration".

The Indian Ambassador pointed out that India's achievements since independence had not been inconsiderable and mentioned in this connection how the food production had been doubled and the industrial output trebled, along with 83 million school children and population explosion reduced by 40 million people.

The noted economist, Mr. Marian Radetzki said at considering the situatton from which India started ut, its economic achievements are "considerable". nother distinguished intellectual, Mr. Nils Thedin ummed up his opinion on India's progress since ndependence, by saying "25 years of political freedom-his is only an hour or less in the long long history of he Indian people. But it is my conviction that during his very short time a recreation has started".

FORGE PRESS COMMISSIONED

The largest of its kind in the South East Asia, a six thousand tonnes forge press at foundry forge plant at Ranchi, Bihar became critical on 2nd October 1971.

The commissioning of the press marks the completion of Rs. 1080 milllon foundry forge plant at Ranchi. With the commissioning of the press, the plant is now fully equipped to manufacture sophisticated heavy forgings for ship building, electrical and power equipment, steel plants, atomic chemical transport and heavy machine building industries.

STEEL PLANT AT SALEM

The Government of India have decided to set up a new special steel project at Salem in Tamil Nadu. The company will be wholly owned by the Central Government and will have an authorised capital of Rs. 1000 million initially. The project will have a capacity of 195,000 tonnes of finished products and 0.25 million tonnes of special steels.

In India there are 6 major steel plants, both in public and private sectors including Bhilai Steel Project, Durgapur Steel Project, Rourkela Steel Project, Tata Iron and Steel Company, Indian Iron and Steel Company, Mysore Iron and Steel Ltd. etc.

During 1970-71, total production of ingot steel in India was of the order of 6.11 million tonnes While production of saleable pig iron was recorded at 1.27 million tonnes and that of finished steel at 4.72 million tonnes.

POWER PLANT TO BE SET UP

A 240-mw thermal power station project to be set up at Dalkhola in West Dinajpur district of West Bengal has recently been cleared by the Central Water and Power Commission in India.

The project estimated to cost about Rs. 450 million would also supply to Bihar 50 per cent of power generated by it.

The CWPC is also likely to clear shortly another power station projcct to be set up at Kolaghat, also in West Bengal. The installed capacity of the proposed Kolaghat plant would be 600 mw.

The present installed capacity of power in West Bengal is of the order of about 1100 mw. The total power requirement of the State is estimated at 2,300 m.w.

The additional power generation schemes would cost about Rs. 2500 million to the State.

Besides Dalkhola and Kolaghat, expansion of Santaldih (240 mw) and Bandel thermal power stations (200 mw) has already been cleared. Another thermal station for West Bengal with an installed capacity of 200 mw was under consideration of the Government. The location of the station is yet to be decided.

ELECTRICITY FROM KOTA ATOMIC POWER STATION

Power produced from automic energy generated by atomic reactor of the first unit of the Rajastan Atomic Power Station at Rana Pratap Sagar, near Kota will soon be available for the Rajasthan State electricity grid.

The atomic reactor of the first unit of the Rajasthan Atomic Power Station became critical in August this year. Heat produced from reaction is to be used to produce steam to be fed into conventional parts of unit consisting of turbine and generator.

In the beginning, the unit is expected to produce 50 MWE of power. By the end of October this year, the production is expected to reach 100 MWE and by the end of November it would be increased to 140 MWE. The unit will then be stabilised at this power generation level for the period of three months. Thereafter the power generation will be raised by 10 MWE every month till achieving full capacity of 200 MWS.

The commissioning of the first unit of the power station will mark a step forward in India's progress in harnessing atomic energy for peaceful purposes. For commissioning the first unit, a large number of complicated and precision-made equipment and components like boilers, heat exchangers, coolers, reactor vessel 'calendria', shields and a number of others were imported. For the second unit of the project, all these will be manufactured indigenously.

The total cost of the first unit has been estimated at about Rs. 630 million. Of this, the foreign exchange content has been estimated at about 60 per cent. It is envisaged that for the second unit, the foreign exchange content would be reduced to the level of 40 per cent. It is expected to be completed by 1974.

The commissioning of one megawatt pool type reactor 'Apsara' heralded a new era of atomic research in India in 1956. The Apsara was followed by a 40 megawatt 'cirus' reactor and 'Zerlina' a zero energy experimental unit. The commissioning of the plutoneum plant Trombay, near Bombay, indigenously has enabled India to join the group of a few selected nations possessing an advanced nuclear technology.

During 1970-71, the Tarapur Atomic Power Station generated over 2400 million units and in the 17 months of its operation by then generated over 3750 million units. The Madras Atomic Power Station is being built at Kalpakam indigenously. With the completion of the second unit of the Rajastan Atomic power sation, the country's power generation capacity will be increased manyfold.

RECORD INSECTICIDE PRODUCTION

Following the achievement of rated capacity, the Alwaye and Delhi factories of Hindustan Insecticides Limited registered record production of the sales turnover during 1971-72. The output of both the factories was of the order of 4094 tonnes of technical DDT. The combined DDT output for the year was 7738 tonnes - an increase of 34 per cent over the previous year. At the Alwaye unit, new benzene hexachloride (BHC) was produced to the tune of 1857 tonnes against the annual target of 1500 tonnes.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

LOW-COST BUILDING MATERIAL DEVELOPED

A series of low cost construction materials and their processing plants have been developed by the Central Building Research Institute (CBRI), Roorkee. These inventions are of particular significance, in view of the emphasis being laid on low-cost housing programmes to be included in the Fifth Five-Year Plan. Following are some of the products of intensive research on low-cost building material by the Institute.

A machine designed and fabricated by CBRI has a capacity of producing 3,000 wirecut bricks per hour. The quality of the bricks is far superior to hand-mould bricks. The machine can also produce various structural clay products for economic roofing/flooring systems. The machine is now being commercially produced by five manufacturers.

An automatic cutter to match with brick machines of capacity 3,000 to 5,000 bricks per hour has also been developed and fabricated.

The Cellular Concrete blocks prepared from lime and flyash conform to the standard specifications for load bearing and non-load bearing lightweight concrete blocks in respect of density, strength and drying shrinkage. The material is idealiy suited for the construction of pre-fabricated structures. It can also be used as a thermal insulation material in buidings, cold storage etc.

Corrugated clay sheets produced from suitably treated alluvial clay and burnt in down draught kiln are ideally suited for rural housing. These have been successfully and economically produced in large scale by Khadi-rural industries and used in roofing. The pipes are suitable for rural water supply and irrigation.

Magnesium oxychloride economically produced from dolomite has been used for producing flooring composition for Railway coaches, flooring tiles and magnesium oxychloride bonded saw dust door and window frames which are economic alternative to conventional materials.

Bloated clay aggregate is a synthetic lightweight aggregate. It is manufacured by heating suitable clay to the point of incipient fusion. In the pyroplastic stage the clay mass expands, and on cooling, results in a hard, porous, spherical, lightweight material known as bloated clay. For its manufacture the clay is ground, screened, pelletised and fed into an oil fired rotary klin. The clay pellets expand on firing at about 1200° C. It has a bulk density of the order of 650 kg/m/3, and is suitable for making lightweight concretes of different strengths required in building construction. A prototype two roomed construction using bloated clay aggregate concrete has been built at the Institute.

HYDRAULIC VIBRATION MACHINE

A machine for testing vibrations of machine structure and components has been developed by the Indian Institute of Technology (IIT), Madras. The machine is known as Hydraulic Vibration Machine.

The new machine has been developed with completely indigenous know how and raw material for the first time in India. The Hydraulic machine consists of Hydraulic power pack, a four-way valve actuated by a double ecentric and connecting rod mechanism and an actuator with a test table screwed to its piston rod. It it is designed to vibrate a load of one tonne. The amplitude of the table can be varied upto 2 cm. and the frequency from 4 to 40 cycles per second.

The developed machine has wide applicability in the various industries. The main applications of this machine will be in dynamic or vibrating testing of machine structures and components, in the study of vehicle suspension and riding comforts, consolidating loose materials and in testing of equipment.

The indigenous machine is much cheaper than the imported one. The imported machine costs four to five times more than the machine developed indigenously. A private firm has recently secured license to manufacture this and other similiar testing machines on commercial scale.

ANODIC PHOSPHATING BY BARRELLING

At present production of phosphating chemical in India is based on heavy metal phosphates. Lately a new method of barrel phosphating has been developed by Central Electrochemical Research Institute (CERI), Karaikudi. In this new method, the small parts to be barrel phosphated are dropped into a solution of sodium phosphate held in the barrel. Electrical connections are given such that the barrel is anode and auxilary electrode is passed between the cathode and anode and the barrel is rotated. At the end of the prescribed period the barrel is stopped and the item is taken out. The new process envisages the use of tri-sodium phosphates in place of heavy metal phosphate. Phosphating being done at room temperature instead of elevated temperature. Phosphating can be used for all types of small parts and hard-ware items which require phosphating and which can be introduced in barrel.

Tri-sodium phosphate, trichloro-ethylene and hydrochloric acid are the main raw materials needed in the process. All are available indigenously. The essential items of plant and machinery are : Barrels; Rectifiers; Vapour degreasing plant; Filter press; Electrically heated drying chamber; Ion exchange column; PVC pump; Centrifugal pump Deioniser; M. S. tanks; Polyethylene tank; Pickling tank and Storage tank for Hydrochloric acid.

Phosphate coatings are widely employed to improve the adhesion of the paint metal and retard spreading of corrosion under paint film and reduce friction in wire making, tube making body pressing and other deep drawing operations. A large number of items used in industries such as automobile industry, refrigerator industry, typewriter industry, sewing machine industry and motor cycle industry require to be phosphated. The types of small parts to be phospated are nuts, bolts, screws, washers, driving gears, tappets, bushes and brackets. Phosphating chemical is already being produced in the country by some firms. However, all their production is based on heavy metal phosphates. It is estimated that the country needs phospnating chemical worth Rs. 0.71 million.

COMPOSITION OF INDIA'S EXPORTS

(In million rupees)

Export Product	1970 - 71	1971 - 72
Fish and Fish Preparations	305.37	413.88
Meat and Meat Preparations	30.52	13.82
Cereal and Cereal Preparations	109.72	71.66
Fruits and Vegetables	**650.17**	**703.48**
a) Fresh Fruits and Nuts	544.07	634.72
b) Fruits Preserved and Fruit Preparations	17.26	18.35
c) Vegetables	70.36	32.69
Sugar and Preparations and Honey	294.47	309.54
Coffee	251.05	220.72
Tea and Mate	1482.47	1563.14
Spices	388.05	361.75
Feeding Stuff for Animals	589.65	439.65
Unmanufactured Tobacco	313.98	422.46
Tobacco Manufactures	11.64	28.34
Textile Fibres and Waste	273.42	370.94
Metalliferrous Ores and Metal Scraps	1421.08	1210.34
Crude, Animal and Vegetable Materials	431.50	471.19
Petroleum and Petroleum Products	85.61	68.58
Fixed Vegetables, Oils and fats	70.32	71.60
Chemical Elements and Compounds	**78.39**	**72.32**
a) Organic Chemicals	33.11	33.29
b) Inorganic Chemicals	45.29	39.03
Dyeing, Tanning and Colouring Materials	72.60	54.51
Essential Oils and Perfumes Materials	71.27	86.38
Leather and Leather Manufactures	721.82	907.65
Rubber Manufactures	68.57	76.60
Paper and Manufactures	54.08	29.41
Textile Yarn, Fabrics and Related Products	**3504.09**	**4260.70**
a) Jute Manufactures (excluding twist and yarn)	1891.73	2632 87
b) Cotton Manufactures (excluding yarn and thread)	974.66	1000.43
c) Textile Yarn and Thread	344.79	280.36
d) Floor Covering and Tapestries	157.50	197.70
e) Woven Textile Fabrics	121.29	135.94
Pearls, Precious and Semi-precious Stones	418.79	515.15
Glass and Glassware	17.49	14.47
Iron and Steel	906.18	407.72
Non-ferrous Metals	120.93	79.79
Metal Manufactures	278.44	236.60
Machinery other than Electric	280.78	241.60
Electrical Machinery, Apparatus and Appliances	160.81	186.74
Transport Equipment	**309.51**	**279.82**
a) Railway Vehicles	28.17	69.40
b) Road Motor Vehicles	209.03	119.80
c) Road Vehicles other than Motor Vehicles	70.98	73.22
Clothing	301.98	350.54
Footwear	114.40	117.59
Scientific, Medical, Optical, Measuring and Controlling Instruments and Apparatus	14.22	16.50
Developed Cinematographic Films	58.58	50.15
Total including other items	**15243.88**	**15686.15**

Source : Department of Commercial Intelligence and Statistics, Calcutta.

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INDUSTRIAL AND POWER BOILER INDUSTRY

Besides power boilers, India to-day produces a wide range of industrial boilers to meet the requirements of a number of industries such as sugar industry, nitrogenous fertiliser plants and paper, textile, steel and chemical plants. Parctically all types of boilers like vertical, lancashire, cornish, economic, packaged, waste heat, flue tube and water tube are being manufactured in the country.

With 14 units engaged in the line in the organised sector, the current installed capacity is worth Rs. 115 million for industrial boilers and 1.3 million KW for power boilers. The total licensed capacity in the industry is Rs. 148.80 million. The total value of production of the units manufacturing boilers and mountings was of the order of Rs. 390 million in 1971 as against Rs. 304.5 million in 1970 and Rs. 234.80 million in 1969.

Actual production of industrial boilers reached a level of Rs. 103.24 million in 1971 as against Rs. 86.90 million in 1970. Rs. 65.77 million in 1969 and Rs. 64.94 million in 1968. Interestingly, about a decade back, the production value for industrial boilers was only Rs. 5.52 million.

The power boilers that are currently being installed are of the range of 60 MW, 100MW, 110 MW, 120 MW and 220 MW. Two of the existing units have been licensed to manufacture boilers of upto 200 MW for thermal power stations. The public sector Tiruchirapalli Unit in Tamil Nadu, of the Bharat Heavy Electricals Ltd., Bhopal is engaged in the production of power station boilers. This units which has been in operation since 1966 is designed for the manufacture of about 30,000 tonnes of boiler house and associated equipment, which is equivalent to an annual addition of thermal power of about 750 MW. During the Fourth Plan the capacity of the plant is expanded to 1100 MW per annum. A proposal to increase the output of this unit from 1100 MW to 2500 MW annually is being considered by the Government of India. A number of schemes have also been approved for the manufacture of boiller mountings. There are currently four units engaged in the production of boiller mountings.

Alongwith production of boilers, there are half a dozen units manufacturing pipes and tubes for boilers for replacemement purposes. These manufacturers undertake to employ the required replacement within five to six weeks. This is significant as the boilers are long-delivery items and the boilers manufacturers do not normally undertake the replacement jobs. The total turnover of these producers is currently about Rs. 25 million per year. The fabrication of tubes and pipes for the boilers is, however, handicapped due to inadequate supplies of seamless and electric resistance welded (ERW) pipes. The boiler industry as a whole faces a problem due to inadequate availability of boiler quality steel in the country. These problems are under consideration of the concerned Ministries of the Government of India.

With increasing production, import of complete boilers in the country has lately been negligible. On the other hand exports of boilers, steam generating and parts rose to Rs. 6.21 million in 1970-71 as against Rs. 0.76 million in 1969-70. These export supplies further improved to about Rs. 6.58 million, during 1971-72. Of this, boilers accounted for Rs. 2,89,224, while boiler parts/components fetched Rs. 6.29 million. Malaysia with an intake valued at Rs. 2,16,946 was the major buyer for boilers followed by Iraq and Sri Lanka whose purchases were of the value of Rs. 56,278 and Rs. 16,000 respectively. As regards and components, Malaysia again emerged as the chief importer with an intake of parts/components worth Rs. 5.91 million. Singapore, Uganda, Arab Republic of Egypt, Burma, Muscat were the other major importers in order of the purchases made by them. ☐

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EXPORT OF HEAVY ELECTRICAL EQUIPMENT

Heavy electrical equipment industry in India has made rapid progress during the last decade. Besides meeting the needs of the power generation programme in the country, it has made considerable headway in the export field also.

During 1971-72, the Heavy Electricals India Ltd. (HEIL), Bhopal, a public sector unit engaged in the manufacture of heavy electrical equipment were able to book export orders valued at about Rs. 13.8 million. Of this, orders of the value of Rs. 9.5 million were received for the supply of switchgears to Iraq, Malaysia and Sri Lanka, motors for Malaysia and Iraq, transformers to Malaysia, tap changer bushings for U.K. and switchgear spares to Australia. To their credit, the orders booked by the Bhopal Factory include one from Malaysia for the largest power transformers ever exported from India. Besides, supplying the transformers, HEIL would also be completing the erection and commissioning of the plant. The order was won against global tenders and in the face of stiff competition from European manufacturers with a background of a few generations in the export market. The order was placed by Malaysian customer after a detailed inspection of the Transformer Division of the Bhopal Factory by their British Consultants.

Equipped with the most modern machine tools and testing equipment to manufacture all types and sizes of heavy electrical equipment, the multi-plant complex at Bhopal can manufacture almost the entire range of heavy electrical equipment required for generation, transmission and utilisation of electric power. Their products are designed and manufactured in line with Indian, British and international standards to meet exacting specifications of various customers. During the year 1971-72, the finished output (including major assemblies) of this unit amounted to Rs. 359.6 million as against their target of Rs. 361.8 million. The total value of turn-over was Rs. 424.3 million against Rs. 289 million during the previous year (1970-71), representing an increase of 46 per cent. Through the production targets in case of transformers and turbines and generators could not be kept, the targets fixed for switchgears, capacitors, traction and industrial machines were achieved. The major accomplishment of the factory during the year was the production of the first 120 MW turbo-generator, the largest produced so far in the country. The other achievements of HEIL during the year were the completion of a Marine Turbine for the Leander Class Frigates, a 67.5 MVAr Coreless Reactor and two 30 KA Booster Transformers, DC and AC large vertical motors, a class 'H' insulated DC motor for industrial application and the manufacture of Eddy Current Clutches for diesel/electric locomotives. During the year under review two prototype locomotives manufactured at a Diesel Locomotive Works were fitted with modified generators manufactured by HEIL. The undertaking has also developed a number of DC machines for the first time in the country. A prototype 33 KV Minimum Oil Breaker has also passed preliminary tests.

The HEIL have also undertaken the development of 400 KV Power and Instrument Transformers involving very specialised techniques. For many of the projects undertaken, they have been working in collaboration with the various national laboratories and universities to avail of the expertise and facilities available with them.

AUTOMOBILE ENGINES TO ARAB REPUBLIC OF EGYPT

Forty engines and spare parts worth more than Rs. 1.5 million have lately been supplied to Arab Republic of Egypt for use in buses laid up due to engine defects with the Cairo Transport Authority, Cairo (ARE).

The Indian firm, M/s. Kirloskar Cummins Ltd., Kothrud, Poona-29 who executed the supply were able to secure the order in the face of stiff competition from some renowned manufacturers of automobile engines in the world. The order was placed with the firm only after one Cummins NHC-4 engine, built and specially engineered to meet the requirements of the Cairo Transport Authority, had been tried out and found satisfactory by the Transport Authority in Cairo.

The Poona firm is expecting a further order for 40 engines from the Cairo Transport Authority. They have also supplied a trial engine to the Transport Authority for the purpose of repowering the Nasr bus which had originally been powered by a well-known air cooled engine. The trial engine has been specially designed by the firm with a modified radiator for side mounting. If approved, it may shortly secure an order for 200 to 300 such engines.

The Poona firm entered the export field in 1968 and their total foreign exchange earning, so far, has reached a level of more than Rs. 20 million.

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CABLES AND WIRES ON EXPORT FRONT

Cables and wires occupy an important position amongst the export of engineering products, next to automobiles and accessories. As against Rs. 111.2 million worth of cables exported during 1969-70, the exports during 1970-71 fetched Rs. 113.2 million. In 1971-72, the export earning was Rs. 105 million. The major item of export in the line include insulating cables and wires, bare aluminium conductors, bare copper conductors and other types.

During these years, the major importing countries of insulated cables and wires were U.S.S.R., Iran, Sri Lanka, Qatar, Federal Republic of Germany and Australia. For bare aluminium conductors, U.S.S.R., Arab Republic of Egypt, Sudan, Iran, Tanzania, Kuwait and Thailand were the major destinations. For bare copper conductors, Iran, Kuwait, Singapore and Hong Kong were the main markets.

Adding to the export effort, one of the prominent manufacturers in the line, M/s. Indian Cable Industries, Bombay-Poona Road, Pimpri, Poona-18, were able to export their products worth Rs. 2.80 million in 1971 as against Rs. 2.30 million exported by the firm during 1970. Quantitatively, the firm exported 37.42 million Core metres in 1971 compared to 35.7 million Core metres in the previous year. This marks an increase of 21 per cent in terms of value and an increase of 5 per cent in terms of quantity. The range of cables produced by the firm include PVC insulated House Wiring Cable, PVC insulated Flexible Wire, PVC insulated Automobile Cable and PVC insulated Hook-up wire.

The Poona firm is exporting to as many as 35 countries all over the world. The major importers for their products are Iran, Iraq, Sudan, Cyprus, Greece, U.K., Bolivia, Kuwait, Kenya, Sri Lanka, Sierra Leone, Indonesia, etc.

M/s. Finolex Plastics Pvt. Ltd., one of the associates of the firm, are also active in the export field. They export telephone coiled cords and PVC compounds which are used for electrical cable covering and shoe making, etc.

Currently 25 units are engaged in this line and the production of cables and wires (AIR & PVC cables) during 1971 was of the order of 490,988 Kms. as against 422,973 Kms. in 1970.

RAILWAY CARRIAGE FANS IN EXPORT TRADE

Export earning of electric fans and parts made in India was of the order of about Rs. 14 million during 1971-72.

Ceiling fans constitute the foremost category accounting for more than 85 per cent of total fan exports from India. Pedestal fans, table fans and railway carriage fans are the other types generally exported. Among the countries importing these fans from India, Iran, Iraq, Kuwait, Nigeria, Saudi Arabia, Sudan and Arab Republic of Egypt figure prominently. These countries annually import more than 35 per cent of total exports of fans from India. As regards railway carriage fans, overseas supplies were directed only to Singapore in 1970-71 and to Muscat in 1971-72. Interestingly, however, the export earning for this category improved from a mere Rs. 1,980 in 1970-71 to Rs. 26,277 in 1971-72.

Adding to the export effort for railway carriage fans, M/s. Jay Engineering Company, Calcutta, recently secured an export order against global tender for supply of 1600 railway carriage fans with accessories valued at Rs. 350,000 to Bangla Desh. The firm has received this order against free foreign exchange.

Total production of electric fans was of the order of 1.90 million numbers in 1971 compared to 1.57 million numbers in 1970. The annual installed capacity was 1.8 million numbers in both the years. Increase in production has brought down imports of fans from Rs. 2 million in 1956 to a negligible level now.

There are about 25 units in the large-scale sector and about 40 units in small scale sector engaged in the manufacture of electric fans and parts and accessories thereof. The industry manufactures fans according to standard and specifications set by Indian Standards Institution and the exports are covered by Quality Control and Pre-shipment Inspection.

Besides physical exports, the country is now in a position to export fan making technology also. There are already two joint ventures, one in Malaysia and the other in Singapore for the manufacture of electric fans and sewing machines.

NEW MARKET FOR IRON ORE

Exports of iron ore and concentrates are maintaining steady growth in the recent years. In 1971-72, the exports were recorded at a level of Rs. 1046.96 million.

In 1971-72, in the entire group of iron ore and concentrates, iron ore constituted the major single item of export which netted foreign exchange to the tune of Rs. 998.25 million. As in the previous year (1970-71), Japan was the main buyer whose total intake of this item amounted to Rs. 815.81 million. Rumania was the second major importing country absorbing worth Rs. 62.34 million, followed by Czechoslovakia Rs. 37.96 million, Poland Rs. 23.78 million, Yugoslavia Rs. 13.51 million and Bulgaria Rs. 11.80 million. Besides these countries, Belgium, China Republic, Hungary, Federal Republic of Germany, Japan and U.K. were the other prominent destinations.

The exports in the field of iron concentrates were at a value of Rs. 48.70 million. Here again, Japan occupied the place as number one importer accounting for Rs. 47.51 million and absorbing more than 95 per cent of the total export value. Poland the only destination for this item after Japan absorbed worth Rs. 1.20 million.

The State-owned Minerals and Metals Trading Corporation (MMTC) has recently secured a new market for Indian iron ore in Far East with conclusion of a contract for supply of iron ore to the tune of 1.14 million tonnes, valued at Rs. 80 million to the newly established Pohang Iron and Steel Company of South Korea. The supplies are to be effected from February 1973 and will be phased over a period of 5 years.

Ore for the supply to the South Korean plant will be drawn from Bihar and Orissa mines and supplied through the ports of Paradip and Haldia in Orissa and West Bengal.

Iron ore exports by MMTC which were of the order of only 5.3 million tonnes in 1964-65 rose to 12.11 million tonnes in 1970-71.

The country possesses vast reserves of iron ore having varying contents of iron. The main varieties are of high grade with 60 to 65 per cent Fe content. Madhya Pradesh, Goa, Orissa, Bihar and Mysore are main iron ore producing states in the country.

The total production of iron ore in 1970 was of the order of 30.78 million tonnes while in 1969, it was 29.57 million tonnes.

LATHE MACHINES IN EXPORT STREAM

Machine tool industry occupies an important position among India's engineering industries, and has made considerable heaway in the export field in recent years.

From only Rs. 7.5 million in 1965-66, the exports of machine tool from India shot up to Rs. 28.4 million in 1970-71. During the year, a large number of machine tool were exported. The export earning fetched by some of the important items were : lathes Rs. 8.50 million; boring, broching, drilling and threading machines Rs. 3.82 million; grinding, lapping, honing, polishing, sawing and filling machines Rs. 784,000; metal farming machinery like bending and farming machines, hydraulic presses, rottary shears and other punching and shearing machines, forging machines, rivet machines and others Rs. 2.80 million.

Lathe machines were exported to Australia, Arab Republic of Egypt, Canada, Sri Lanka, Federal Republic of Germany, Malaysia, Netherlands, New Zealand, Sudan, Thailand, Uganda and U.S.A. For other tool Australia, Belgium, Sri Lank, Netherlands, Nepal, Sweden, Federal Republic of Germany, New Zealand, Malaysia and Sudan were the prominent importing countries.

One of the firms engaged in manufacture and exports of lathe machines, Messrs. Ashok Manufacuring Company, Behind Ajit Mills, Opposite Jagannath Estate, Cross Road, Rakhial, Ahmedabad-21, recently exported Tiger Brand super Model All geared centre lathe machines worth Rs. 433,000 to the United Kingdom, Holland, New Zealand, Thailand and other countries. The firm received an award for their export performance from the Gujarat Chambers of Commerce and Industries.

The production of machine tool increased from Rs. 280 million in 1966 to Rs. 480 million in 1971. It is expected to reach a leavel of Rs. 650 million by 1973-74. The industry has rapidly expanded and diversified its production to meet the home demand as well as to satisfy the exacting requirements of overseas buyers.

EXPORT PERFORMANCE AND POTENTIAL

BOOST IN RAW JUTE EXPORT

In the group of textile fibres (not manufactured into yarn, thread or fabrics) and their wastes, jute including jute waste witnessed clear uptrend in export earning in 1971-72 as compared to the preceding year. The ovarseas supplies of jute, raw and waste, and jute cuttings etc. during the year reached a level of Rs. 130.31 million (54,778 tonnes) as against Rs. 42.89 million (20,200 tonnes) in 1970-71. This represents an increase of 245 per cent in terms of value while it was recorded at over 170 per cent quantitatively.

Raw jute (excluding mesta) constituted the largest single item in the entire group accounting for the bulk of exports during the year (1971-72). It fetched as much as Rs. 119.62 million (45,561 tonnes) in foreign exchange as against Rs. 41.38 million (17,452 tonnes) in the preceding year, registering an appreciable increase of Rs. 78.24 million. U.K. was the leading buyer accounting for the bulk of intake, valued at Rs. 44.92 million (16,139 tonnes) as against Rs. 0.64 million (273 tonnes) in 1970-71. U.S.S.R. was the second important market with an intake worth Rs. 23.92 million (9007 tonnes), followed by Belgium at Rs. 20.68 million (8442 tonnes), Spain Rs. 7.27 million (2578 tonnes), Federal Republic of Germany Rs. 5.66 million (2367 tonnes), Japan Rs. 5.2 million (1864 tonnes), Australia Rs. 3.75 million (1344 tonnes), Uganda Rs. 1.9 million (989 tonnes), U.S.A. Rs. 1.7 million (573 tonnes) and Sweden Rs. 1.5 million (942 tonnes).

During the year, jute cuttings netted as much as Rs. 6.83 million (4292 tonnes) as against Rs. 0.32 million (646 tonnes) in 1970-71. Belgium with an intake of Rs. 3.5 million (2258 tonnes) was the major buyer. Among the other importing countries, Federal Republic of Germany absorbed worth Rs. 1.24 million, Sweden worth Rs. 0.97 million and Netherlands worth Rs. 0.67 million.

Besides jute, other items fetched Rs. 3.86 million in the year as against Rs. 1.18 million in the previous year.

The area under jute cultivation in the country has gone up by 13.4 per cent or 99,700 hectares to 846,000 hectares in 1971-72 as compared to 1970-71. The increase in the area was shared by all the jute producing states, particularly, West Bengal. Of the total jute and mesta crop in 1970-71, jute alone accounted for 0.91 million of bales. For the year 1971-72, combined mesta and jute production was placed at 7.2 million bales. The production target for 1972-73 has been estimated at around 8.1 million bales.

INCREASE IN DAIRY PRODUCTS EXPORTS

Export of Indian dairy products and eggs has more than doubled to Rs. 2 million in 1971-72 from Rs. 0.93 million in 1970-71.

During the year 1971-72, butter constituted the major single export item accounting for Rs. 1.7 million and sharing about 90 per cent of the entire exports of these products. During the preceding year butter fetched only Rs. 0.19 million. Similarly there was four-fold increase in exports of cheese and curd at Rs. 9,735 during 1971-72 as compared to Rs. 2,415 in 1970-71. However, there was a decline in the export earnings of milk/cream and eggs. The export values of these products during 1971-72 and 1970-71 were milk and cream Rs. 3,22,821 and Rs. 6,92,626, eggs Rs. 8,930 and Rs. 45,747.

Directionwise, during 1971-72, Nepal emerged as the main importer of melted butter and fresh butter. Malaysia, South Yemen Republic and Singapore were the other destinations. For cheese and curd, Federal Republic of Germany and Kenya were the only importing destinations while for milk and cream, Nepal, Australia and Bahrein Island were the importing countries. Nepal was the purchaser of eggs also.

FURNACE EXPORTS IMPROVE

The furnace industry has lately been able to make a headway in the export field. Foreign exchange earning through export of electric furnaces for heat treatment, electric furnaces for melting and non-electric furnaces ovens rose to Rs. 1.56 million in 1971-72 from Rs. 3,71,868 in the previous year.

Electric furnaces for melting with an earning of Rs. 1.21 million accounted for major share of the exports. Kenya with an intake worth Rs. 1.20 million was the main buyer. Austria and Somalia were the other purchasers. During the same year, electric furnaces for heating etc. valued at Rs. 1,45,709 were supplied to Malaysia while the exports of non-electric industrial and laboratory furnaces and ovens amounted to Rs. 1,99,761. Of this (Rs. 1,99,761), Malaysia again accounted for the major share at Rs. 1,47,112, followed by Singapore at Rs. 41,100. Japan and Sudan were the other two buyers.

The production of furnace industry which was of the order of Rs. 18.12 million in 1964-65 reached a level of Rs. 27.60 million in 1965-66, Rs. 48 million in 1966-67, Rs. 33.90 million in 1967-68, Rs. 30.86 million in 1968-69 and Rs. 30.00 million in 1969-70. Of the total production worth Rs. 46.16 million in 1970-71, melting furnaces accounted for Rs. 15.47 million while the production of other heating furnaces was valued at Rs. 30.69 million. Total production during the first three quarters of 1971-72 was of the order of Rs. 46 million. The industry has planned a production of Rs. 75 million during 1972-73 and Rs. 90 million in 1973-74.

The furnace industry today covers a very wide range of products. On Electric Melting side, the industry is technically capable of handling Arc Melting Furnaces up to 40 tonnes capacity. For such furnaces of upto 10 tonnes capacity, the industry is well established and the import content is very nominal, not exceeding 8 to 10 per cent. The mains frequency induction melting furnaces are also manufactured with a low import content not exceeding 15% and the industry has already covered sizes upto 10 to 12.5 tonnes. In case of medium frequency induction melting furnaces the capacity covered is upto 5 tonnes but the import content is higher at 25 to 30 per cent due to the import of Induction Coils and the Frequency convertors.

Apart from electric melting furnaces, oil fired furnaces for non-ferrous melting as well as specialised rotary furnaces for cast iron melting are also manufactured indigenously.

In the field of heat treatment furnaces. the industry is capable of supplying a very wide range. Steel plant furnaces including soaking pits, billet reheating furnaces, etc. can also be supplied by the indigenous manufacturers. However, laboratory furnaces, where specialised furnaces involving high temperature applications are required, are procured by the country through import.

With growing production there has been a gradual reduction in the country's foreign exchange expenditure on import of furnaces. The out-drain of foreign exchange on account of import of electric furnaces for melting was of the order of Rs. 12.80 million in 1964-65. In 1970-71 the total import of furnaces amounted to Rs. 7.80 million only. Of this, electric furnaces for meeting accounted for Rs. 2.41 million, while the import of industrial laboratory furnaces and ovens was Rs. 4.57 million, that of electric furnaces for heating Rs. 0.44 million and electric induction dielectric heating of furnaces Rs. 0.38 million.

RADIO RECEIVER SETS ACTIVE IN EXPORT TRADE

The export value of radio receivers and parts from India increased to Rs. 21.69 million in 1971-72 as against Rs. 19.28 million in 1970-71.

The overseas supplies of transistor radio sets which constitute the major export item in this group more than doubled to Rs. 17.18 million in 1971-72 compared to only Rs. 7.90 million in the preceding year. Quantitatively also the overseas supply shot up to 2,08,387 sets from 1,01,806 sets in 1970-71. During 1971-72, transistor sets were principally exported to Sudan whose intake value was of the order of Rs. 8.56 million. U.K. was the second important market having purchased the item at Rs. 4.80 million, Congo People's Republic, Czechoslovakia, Ethiopia, Ireland, Mauritius and Iraq were also among notable importers.

In the same year (1971-72) radio receivers (other than transistor sets) accounted for a foreign exchange earning of about Rs. 1.25 million, while radio parts/components (excluding loud-speaker receiving valves and tubes), recorded a substantial earning of about Rs. 4.38 million. A.R.E. with an intake of these parts valued at Rs. 2.60 million was the leading buying country, followed by Netherlands at Rs. 362,903 and Ethiopia at Rs. 2,25,940. Greece, Thailand, Sudan, Iraq, Bulgaria, Sri Lanka, Federal Republic of Germany and Turkey were among importing buyers.

STEEL PIPES AND TUBES EARN MORE FOREIGN EXCHANGE

Combined efforts of the large number of firms engaged in manufacture of steel pipes and tubes have not only made India self-sufficient in the production of these heavy engineering items but also enabled the country to earn valuable foreign exchange.

The cumulative export efforts of such manufacturing and exporting firms of steel pipes and tubes in the organised and private sectors enabled the country to earn foreign exchange to the tune of Rs. 106.59 million in 1970-71. The exports in 1971-72 fetched Rs. 107.97 million, registering an improvement of Rs. 1.38 million over the export value in the preceding year.

Pipes contributed the major single item in the line. Sudan, Kenya, Burma, Saudi Arabia, USA, Australia, Singapore, Iraq, Iran, Arab Republic of Egypt etc. were the prominent markets for this item. During 1971-72, iron and steel tubes and pipes (other than cast iron) earned Rs. 65.08 million. Of this, galvanised variety alone netted worth Rs. 48.60 million. Cast iron tubes and pipes earned as much as Rs. 11.88 million. Additionally, cast iron tubes and pipe fittings secured Rs. 11.31 million while galvanised fittings earned Rs. 16.83 million and non-galvanised variety fetched worth Rs. 30.42 million.

One of the firms engaged in the manufacture of steel tubes and pipes in the Gujarat State, M/s. Shri Ambika Tubes, Shri Ambika Mills premises, Ahmedabad-8 exported mild steel tubes and galvanised pipes in 1971-72 to a level of Rs. 1.75 million to overseas markets.

With a total installed capacity of about 601,500 tonnes, there are 14 units in the organised sector engaged in manufacture of black and galvanised steel pipes and tubes. In 1971, licensed capacity worth 1,17,500 tonnes was created. Including this, the total licensed capacity at the end of 1971 was of the order of 6,24,200 tonnes. As against 2,15,350 tonnes in 1970, the actual production in 1971 was estimated at 2,18,350 tonnes. In 1970, the installed capacity was of the order of 4,84,000 tonnes. Additionally, 6 units are engaged in production of ERW tubes. Their installed capacity rose from 50,400 tonnes in 1970 to 53,400 tonnes in 1971. Their actual production in 1971 was of the order of 31,921 tonnes. In seamless steel tube sector the actual production recorded was 34,300 tonnes during 1971 (as against the installed capacity of 39,600 tonnes in 1971.)

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

IMPORT SUBSTITUTION IN STEEL CASTING INDUSTRY

India's production of steel castings has been progressing year after year. A large number of steel casting items and components which were being imported hitherto by heavy engineering and machine building plants are being increasingly substituted with indigenous material. Further curtailment in imports by the steel casting industry is being planned by providing filip to promote domestic capacity of alloy steel and special composition castings. There are also plans for developing such precision castings in respect of specifications and intricacy of piece weights.

An important instance in respect of import substitution achieved by the steel casting industry has been the substitution of rail carriage bogies that were imported in the past by cast steel bogies now manufactured by three of the country's leading steel casting units. Similarly a number of forged components required to be imported till the other day are now being substituted by indigenously manufactured cast steel in railway, heavy trucks and power plants industries.

In 1971, production of steel castings in India was of the order of 54,500 tonnes as against installed capacity available at 137,000 tonnes. Of the actual production, only 1000 to 1200 tonnes is obtained in the form of alloy steel castings. In view of the low rate of capacity utilisation for alloy steel castings manufacture, there are plans for qualitative and quantitative improvement in the line.

In respect of iron castings industry also a thorough reorganisation is being planned to establish capacity for SG iron, special iron and intricate precision castings, from small to very large piece weights upto about 25 tonnes.

Presently the production capacity established for SG iron castings is 7800 tonnes while the actual production is 2080 tonnes. For malleable casting the present installed capacity is about 22100 tonnes while the output is 17100 tonnes. The iron foundry capacity is expected to be developed to the extent of 150,000 tonnes by about 1975-76, including the SG iron, special iron categories as also in the precision castings area.

As in respect of steel castings, the progress in import substitution in the iron castings industry can be noticed in the consumer engineering industries wherein iron casting has started replacing the imported castings and other varieties of components, parts built up through indigenous production. Cast iron replaced SG iron bearings required by the railways for replacing non-ferrous bronze bearings that were previously utilised in the railway carriage box axles. This is indeed a case of almost total substitution of imported non-ferrous metals by cent per cent indigenously produced S.G. iron bearings.

PRINTING MACHINERY

A REVIEW

With the public sector unit, M/s. Hindustan Machine Tools having commenced the production of automotic letter press printing machines, the manufacture of printing machinery has picked up. Besides the publc sector project, there are six firms in India manufacturing printing machinery of the simple type in the organised sector. The installed capacity of the firms in the private sector is approximately Rs. 12 million. The public sector unit has an installed capacity for the manufacture of printing machines valued at only Rs. 35 million. Through progressive expansion, the capacity of the Hindustan Machine Tools is expected to go up to Rs. 98 million by the middle of the Fifth Plan i.e. 1976-77.

Notwithstanding the entry of Indian firms in the field of printing machinery manufacture the total capacity available in India can hardly meet 25 per cent of the overall demand. In 1970-71, for instance, the import of certain types of printing machinery totalled Rs. 79.54 million of which offset rotary printing presses amounted to Rs. 18.80 million, rotary presses Rs. 10.12 million, type casting and setting machines Rs. 8.64 million, printing presses and parts Rs. 41.7 million. The field of printing machinery is characterised by a variety of products like photo mechanical process equipment, composing machines, binding machines etc.

TWENTY-FIVE YEARS OF THE GROWTH OF BANKING

Over the last twenty-five years of Independence in India, commercial banking in the country has witnessed an alround progress. At the time of independence, the number of bank offices in India was a little over 4,000, today the country is dotted with more than 13,600 bank branches. From around Rs. 9000 million in 1947, bank deposits today amount to over Rs. 77,000 million, an eight-fold increase. Total bank credit at that time was about Rs. 4000 million; now it stands at over Rs. 53,000 million. Resources made available by the commercial banks to the public sector in the form of investment in Government and semi-Government securities amounted to Rs. 4,500 million; today they are over Rs. 20,000 million.

The qualitative changes over the last 25 years have also been equally significant. Till lately, activities of commercial banks in the country were confined to urban areas only and rural areas were left without any appreciable banking facilities. Therefore, as the first remedial measure, the Imperial Bank was converted on July 1, 1955 into a public sector institution named the State Bank of India to introduce and push forward banking facilities into rural areas and unbanked centres.

The emergence of the State Bank and the licensing policy pursued by the Reserve Bank during the sixties encouraged a more balanced branch expansion programme. As a result, between end-1960 and July 1969, the number of bank offices increased from a little over 5,000 to 8,284. From just over 16 per cent at the end of 1960, the proportion of rural branches to the total increased to 22.4 per cent by July 1969.

A new step forward was taken with the nationalistion of 14 major banks on July 19, 1969. With this change roughly 4/5th of the commercial banking system came under the public sector's fold. On the question of extension of banking facilities to rual and unbanked sectors, an areawise approach was evolved and incorporated in an action programme known as the 'Lead Bank' scheme.

The essential idea behind the scheme is that for filling up credit gaps in a particular region it would be better to allocate the coordination responsibility to any one specified instituution than to make general exhortations to one and all. Under the scheme, the district has been taken as the operating unit and all districts (except the metropolitan centres of Bombay, Calcutta and Madras and the Union territories of Chandigarh, Delhi Goa) have been allocated among public sector banks and a few of the private sector banks.

The bank assigned the 'lead' role in a particular district has a major developmental responsibility vis-a-vis that district. Survey reports of 270 out of 337 districts have been completed and considerable success has been achieved in taking banking to rural and less developed areas.

The emphasis on strengthening the base and taking banking to areas that were in the past considered unattractive has led to a phenomenal increase in the number of bank offices during the past three years. At the end of June, 1969 there were 8,262 bank offices, roughly one office for a population of 65,000. At the end of June 1972, the numberof bank offices was 13,620, an increase of 5,358 in a period of three years. As a result of the branch expansion programme, the population served per bank office has declined from 65,000 on the eve of nationalisation to 40,000 now.

Of the 5,358 new offices opened since 1969 as many as 3,435 - over 64 per cent - were established in rural areas. Another 1,029 (19.2 per cent of the total) were established in semi-urban areas. Thus rural end semi-urban areas taken together have claimed 83.3 per cent of the new offices. The proportion of rural branches of banks to the total number has gone up from 22.2 per cent in July 1969 to 38.7 per cent at the end of June 1972. Steps are also being taken to ensure that there is a planned and progressive reduction in regional disparities in the field of banking facilities. The states and regions in which banking facilities were comparatively less than the other states, the rate of augmentation of branches in those states during the last three years has been higher than that for the country as a whole. Over the last three years, whereas the overall increase in bank offices for the whole country was 64.9 per cent, the rate of increase in states with poor banking facilities was higher: Assam-101.3 per cent; Bihar-98.2 per cent; Orissa-92.0 per cent; Jammu and Kashmir-231.4 per cent; Uttar Pradesh-77.2 per cent; Himachal Pradesh-157.1 per cent and Madhya Pradesh-95.0 per cent.

In deposit mobilisation too, there has been a fair measure of success. Till 1951, bank deposits used to fluctuate around the level of Rs. 9000 million, the present level is around Rs. 77,000 million. Though a part of the increase is accounted for by the increase in money incomes in the community in response to the rising price level, in real terms also the growth rate has been fairly high. Banks have introduced a number of new schemes for attracting deposits and they have yielded good results.

Nationalisation of Banks has helped the country in developing its large and small scale industries and restricted flow of wealth in the hands of monopolistic tendencies. Bank credits are now available to millions of small-scale producers, farmers, transport operators and small businessmen for development of trades and professions irrespective of their sizes and volumes of business.

In this context, public sector banks have drawn up a number of schemes to provide credit on a liberalised basis to borrowers in such hitherto neglected sectors as agriculture, small-scale industries, road transport operators, retail trade and small business and professional and self-employed persons. The number of borrowal accounts with the public sector banks for these categories of borrowers has thus increased from 280,000 in June 1969 to a little over 1.3 million in December 1971 and the total amount outstanding under these accounts has increased from Rs. 4,390 million in June 1969 to Rs. 9,610 million at the end of December 1971.

In June 1969, advances to these types of borrowers accounted for 14.5 per cent of the total bank advances and at the end of December 1971 the corresponding figure stood at 23.0 per cent. A further step taken by public sector banks to assist the weaker sections of the community is to launch a pilot scheme to be operated at certain selected branches to provide funds for productive purposes to certain categories of borrowers at the concessional rate of interest of 4 per cent. The main objective of the scheme is to enable the poor to become self-supporting by taking up productive endeavours with the help of small doces of bank finance.

MILK DAIRY COMMISSIONED

A Rs. 10 million milk dairy with monthly handling capacity of 6 million litres of milk was recently commissioned at Dhulia in the Maharashtra State.

The dairy processes 128,000 litres of milk for greater Bombay area and 4000 litrers for local consumption. Spread over 4000 acres of land, it has brought into its fold, over 22,000 milk producers, and 850 cooperative societies in 3 districts and 8 taluka unions. The collection capacity of the dairy will soon reach a level of 2,00,000 litres of milk. It will also be expanded to have a butter churn, vacreator, cream holding tanks and separators. A cheese making unit has already been inaugurated.

The Maharashtra State has more than 2000 primary dairy societies with over 126,000 milk producer farmers supplying about 442,000 litres of milk.

BRIGHT STEEL
A PROFILE

The production of bright steel in India rose from 33,000 tonnes in 1967-68 to about 80,000 in 1971-72, registering more than 140 per cent inrease. During 1968-69 and 1969-70 production was of the order of 4,700 tonnes and 55,000 tonnes, respectively. This uptrend is significant considering that production of bright steel was started in the country only about a decade back.

Bright steel is a special type of gleaming steel free from any blemish, and roughness of dimensional inaccuracy. In India, it is produced with any of the three scientific processes commonly known as 'cold drawing', 'centreless turning' and centreless grinding. It is extensively used as the basic material for manufacturing a wide-range of machine parts, components for automobiles, textile machinery, aircraft parts, bulldozers, tractors, pump, components for motor gears, fans, sewing machines, typewriters, shipbuilding industry, home appliances like dish washers, washer dryers, food mixers and many other machinery and and equipment, accessories and parts.

The organised sector of the industry has an installed capacity of 64,500 tonnes which is a 12.2 per cent increase over the 1970 capacity of 57,500. The actual production by the 9 units engaged in the line went up to 56,160 tonnes in 1971 as against 46,300 tonnes in 1970. The assessed capacity of small scale units is about 30,000 tonnes a year.

Bright steel bars and shaftings are produced bythe Indian manufacturers in cold drawn form which is accurate in size and toleranances with increased mechanical properties; turned (peeled) form for higher polish and dimensional accuracy; and ground bars for sophisticated products which require the closest possible tolerances. They are produced in rounds, squares, flates, hexagones and other sections in different lengths, sizes and tolerances to suit customers' requirements.

The bright steel bars and shaftings industry has also made some headway in the export field. Beginning with only Rs. 10,000 worth of exports in 1963-64, the exports went up rapidly and reached the figure of Rs. 16 million in 1969-70. The 1970-71 and 1971-72 exports were, however, lower.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

LOW PRICED INDIGENOUS VALVE FABRICATED

A low priced indigenous valve used in treatment of hydrocephalus has been fabricated by the All India Institute of Medical Sciences (AIIMS) in collaboration with Indian Institute of Technology, New Delhi.

About five hundred valves have been supplied upto date to neuro surgenos working in various hospitals in the country. These atrio-ventricular shunt valves are much cheaper than the imported ones.

The Department of Paediatric Surgery of AIIMS has been experimenting with new designs of similarly low priced valves and three more designs have been evolved.

TECHNOLOGY INSTITUTE DEVELOPS NEW DEVICES

The P.S.G. School of Technology, Coimbatore, has developed three new systems devices. The details are as follows :-

Transistorised Car Ignition

The transistorised capacitor discharge ignition system developed by the Institute is an electronic gadget which can be fitted to any automobile to achieve improved performance.

The system operates on a 12 V car battery and is so designed that it can easily be fitted to any petrol engine car having four, six or eight cylinders. It gives an improved energy output per spark of 40 to 80 milliwatt seconds. In this system the low battery coltage is converted to a high voltage pulse which is discharged through the primary of the ignition coil and this fires spark plugs. The switching action is controlled by a silicon control rectifier.

The ignition system confers some benefits including saving in fuel consumption, improved combustion, reduced air pollution, increase in engine performance, better acceleration and high speed performance, elimination of the need for frequent adjustments of contact breakers and spark plug gaps, instant start in all weather, applicable to any 12 V negative ground petrol engine.

Intercom Via Electric Mains

This system developed by the Institute, uses supply lines (phase or neutral) for its operation leading to considerable reduction in total cost of the intercommunication systems.

This is basically a carrier communication system. The speech is amplified in an audio amplifier and used to modulate a career of a higher frequency and then is coupled into the supply lines through coupling networks.

Each unit consists of a transmitter and a receiver and the two functions are selected by operating a switch. Each is provided with a cell signal also. The units are built with indigenous components.

Second Order System Simulator

The Second order system simulator consists of three integrated circuit operational amplifiers together with two calibrated potentiometers and three uncalibrated potentiometers. A timber circuit is incorporated to calibrate the simulator response timings, with five different ranges from 0.1 to 10 seconds. Electromagnetic relays are used to obtain the three modes of operation, namely, Rest, Compute and Hold, plug-in components are used for simulation.

The equipment provides essential facilities for investigation of various aspects of Analog Computation. This unit can be of immense use in educating students about the system dynamics of simple electrical, mechanical and other systems. It can be used to solve linear time invarient second order differential equations. Further it finds application in the study of the effect of parmeter variation on system response. Nonlinearities like relay, relay with dead zone and negative hysteresis can be generated with additional companents like diodes and batteries.

GREEN GRASS DRYING PLANT

A plant for drying green grass is being set up at Vapi in Bulsar district of Gujarat, in India. The plant has an annual capacity to turn 18,000 tonnes of green grass into 5,000 tonnes of meal to be filled in bags or made into pellets or cubes.

Green grass contains 65 to 80 per cent moisture. In the natural drying process, grass loses proteins and other nutrients. This loss is reduced from 32 per cent to 4 per cent in the case of artificial drying. Under this process, it is also possible to introduce extra nutrients to ensure a balanced feed. Such feed is not only more palatable but also helps to build up resistance against diseases. Regular feeding of dehydrated grass leads to better quality yield from cattle and poultry.

DIRECTION PATTERN OF INDIA'S EXPORT TRADE

(Rs. in million)

Region	1970-71	1971-72
Africa	**1381.62**	**1319.12**
A.R.E.	552.86	230.50
Sudan	382.70	517.43
Nigeria	86.20	98.88
Kenya	78.54	78.36
Tanzania	43.94	41.39
Uganda	29.67	45.20
Ethiopia	26.20	20.46
Libya	16.50	18.35
Morocco	18.65	8.56
North America	**2347.32**	**3021.94**
U.S.A.	2067.80	2627.90
Canada (including Newfoundland and coast of Labrador)	279.50	394.04
Latin America	**83.10**	**125.82**
Other American Countries	**20.30**	**28.00**
E.C.A.F.E. Countries (including China)	**4078.54**	**3831.52**
Japan	2021.45	1817.06
Sri Lanka	318.10	212.12
Australia	243.98	279.27
Nepal	234.60	284.33
Iran	266.38	197.46
Singapore	174.98	175.16
Hong Kong	171.38	154.65
Other Asian and Oceanian Countries and Antarctic and Arctic Regions	**717.90**	**625.26**
Kuwait	156.66	106.87
Saudi Arabia	145.10	111.26
Iraq	90.40	97.08
East European Countries	**3623.06**	**3434.80**
U.S.S.R.	2098.48	2086.76
Yugoslavia	393.57	243.73
Czechoslovakia	294.40	304.47
Poland	221.16	199.15
European Common Market Countries	**981.54**	**1237.71**
Federal Republic of Germany	321.55	367.50
Belgium	203.20	240.30
France	179.42	241.26
European Free Trade Area Countries	**1887.53**	**1880.06**
U.K.	1699.98	1680.81
Switzerland	72.27	74.78
Sweden	59.33	60.28
Other European Countries	**122.96**	**131.22**
Spain	26.82	31.02
Ireland	64.32	57.85
Total of all Countries	**15243.90**	**15686.15**

Source : Department of Commercial Intelligence and Statistics, Calcutta.

ALUMINIUM

Production of aluminium which occupies primary position in the non-ferrous metal industry in India, increased to 161,081 tonnes in 1970 as against 132,556 tonnes in the preceding year. The installed capacity also went up to 167,668 tonnes in 1970 from 139,000 tonnes in 1969. The total licensed capacity at the end of 1970 was of the order of about 429,850 tonnes.

Aluminium industry started way back in 1943 with one plant to manufacture the metal from bauxite with an annual capacity of 1200 tonnes of ingots and 500 tonnes of rolled products. Till about 1961, only two firms were producing the metal, the total production having gone up to 18,382 tonnes per annum in that year. Since then, a notable increase has been witnessed in the production.

The demand for the metal during 1971-72 was estimased at 233,000 tonnes; it is expected to rise to 247,000 tonnes by 1973-74 and to about 441,000 tonnes by 1978-79.

At present six factories are engaged in producing aluminium and their output during 1971-72 was estimated at about 200,000 tonnes. The existing units, all in the private sector, are planning to expand their production capacity and the total capacity when realised is expected to be around 284,000 tonnes per annum.

Notwithstanding the expansion in production capacity in the private sector, the Government has decided to set up two projects, one at Korba in Madhya Pradesh with a capacity of 100,000 tonnes per annum and the other at Ratnagiri in Maharashtra for a capacity of 50,000 tonnes per annum. While the Korba unit is expected to go into production sometime in 1973, the Ratnagiri unit, according to modified programme, shall go into production around the middle of 1974. Till the time sufficient capacity is generated in the country, certain amount of semis and products are to be imported. The value of such imports stood at Rs. 33.5 million during 1970-71.

At the Korba Project the work gathered momentum at the first phase for production of 200,000 tonnes of alumina. The second phase involves the setting up of a smelter in two stages, for production of 100,000 tonnes of aluminum metal per annum, a rolling mill for prduction of flat products and other fabrication facilities.

The contribution of the industry to the national economy, especially by way of import substitution, has been commendable. Considerable foreign exchange was saved by replacing copper by aluminium in the electrical industry during the past few years.

All overhead power transmission lines including those for L. T. distribution have now aluminium conductors and part requirements of E. C. grade aluminium for this industry is being met from indigenous production of the metal. Copper winding wires and strips are being substituted, to an extent, by aluminium for use in items like chokes and distribution transformers of smaller rating. Again, all power cables except some special types used for mining, signalling and railways are being manufactured with aluminium conductors instead of copper.

By using aluminium in place of brass, complete substitution has also been achieved in the manufacture of electric lamps. Manufacture of bus bars in copper has now been substituted by aluminium in many sizes. A number of switchgear components and extrusions are also being produced in aluminium. In the electric fan industry copper rotors have been replaced by aluminium rotors. The electric fan blades which were made formerly of steel sheets are now made with indigenous aluminium resulting in saving of copper and special steel which were being imported.

Some of the important industries using aluminium in India today are : Electrical Industry (Conductors, Condendsors, Transformers and Motors); Transport Industry (Automobiles, Railway coaches and aircrafts); Building and construction Industry (Structurals in the form of sheets and plates for construction of houses, door window handles, latches etc); Hardware (household utensils and appliances); Packing material (in the form of foils and collapsible tubes for pharmaceuticals, tea chest lining, cigarette packing, dairy products packing etc.); and as castings (for use in automobile industry as engine components etc.).

The main raw material for the aluminium industry is bauxite ore and India is favourably placed in this regard. Cryolite, Aluminium Flouride,, Calcined

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Petroleum Coke, Calcined Anthracite Coal, Metallurgical Coke and Pitch are the other raw materials required by the industry. At persent the country has to import most of these materials. But it is hoped that with the progressive production of some of these materials within the country, it would be possible to cut down imports and meet the demand of the industry from indigenous sources in the not too distant future.

Keeping in view the substantial deposits of bauxite available in the country—227 million tonnes of which the good grade deposits amount to about 200 million tonnes - the plan targets have been set with a view to attaining self-sufficiency by the end of the Fourth Plan period (1973-74) or early years of the Fifth Five-Year Plan, leaving also a marginal surplus for export. The export traget during the Fifth Plan has been set at 50,000 tonnes per annum. It is also envisaged to export alumina from the coast-based bauxite deposits in Gujarat and Goa. During 1970-71, production of bauxite amounted to 1.4 million tonnes.

The aluminium industry has also a significant place in the export trade of the country. During 1971-72, overall oxport earnings of the aluminium industry amounted to about Rs. 34.00 million. Export of unwrought aluminium and alloy was Rs. 0.60 million and the quantity exported was 91 tonnes. U.K. emerged as the principal importer with an offtake of 30 tonnes valued at Rs. 0.26 million. Aluminium bars and rods of a quantity of 120 tonnes valued at about Rs. 0.91 million were exported, mainly to Saudi Arabia (16 tonnes valued at Rs. 0.14 million) and Iran (10 tonnes valued at Rs. 0.13 million). Nearly 5936 tonnes of bare aluminium conductors was exported during the year and the export earning stood at Rs. 27.70 million. Iran with 2574 tonnes at Rs. 12.04 million, U.S.S.R. with 2245 tonnes at Rs. 10.90 million, Singapore with 389 tonnes at Rs. 1.50 million, Yugoslavia with 313 tonnes at Rs. 1.37 million, Sudan with 122 tonnes at Rs. 0.47 million and Sri Lanka with 71 tonnes at Rs. 0.45 million were the major buyers of this item from India in the year 1971-72.

Aluminium wire fetched an export earning of Rs. 0.24 million with a quantitative supply of 42 tonnes. A.R.E. and Dubai absorbed 32 tonnes at Rs. 1,65,425 and 16 tonnes at Rs. 1,01,310 respectively.

Aluminium foil is yet another major item it the export stream having a share of 226 tonnes valued at Rs. 1.72 million. U. K. the principal market accounted quantitatively for 101 tonnes and valuewise for Rs. 0.75 million.

The other items in the export list are aluminium circles, sheets, plates, powder and flakes, tubes, pipes, blanks and fittings for tubes and pipes. The total earning by the export of these items stood at Rs. 2.80 million (392 tonnes) during 1971-72.

The Aluminium industry in India is thus not only helping the import substitution programmes, but also contributing considerably to foreign exchange earning through export. □

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EXPORT ACHIEVEMENT IN TOBACCO MANUFACTURES

While India has already established its reputation the world over as a significant exporter of un-manufactured tobacco, recent years have witnessed uptrend in her export of tobacco manufactures also. In 1971-72 the export value of unmanufactured tobacco was of the order of Rs. 422.46 million as against Rs. 313.98 million in the previous year. The export value of tobacco manufactures in the comparable years was Rs. 28.34 million and Rs. 11.64 million.

Cigarettes constitute the major segment of trading in tobacco manufactures having earned Rs. 15.71 million in 1971-72. USSR was the outstanding market having imported worth Rs. 14.96 million. Hungary, Saudi Arabia, Mauritius, Bahrein Islands and Somalia were the other important markets. Bidis form another line of export importance. Rs. 1.58 million worth of foreign exchange was earned by the bidi exports. Malaysia and Singapore were the important markets. Hookah tobacco was mainly imported by Saudi Arabia (Rs. 4.9 million), Kuwait, Bahrein Islands, Kenya and Maladive Islands. The total export value of Hookah tobacco in 1971-72 of was the order of Rs. 6.84 million. Among the other varieties of tobacco manufactures exported were chewing tobacco, Jarda scented tobacco and snuff.

Of the leading exporters of cigarettes, M/s. India Tobacco Co. Ltd., Virginia House, Calcutta-1, have made a mark. Foreign exchange earning in 1971-72 through their cigarette sales added up to Rs. 10.41 million. USSR was the leading market at Rs. 9.40 million. Hungary at Rs. 0.55 million and Bhutan at Rs. 0.27 million were the other buyers. Varying quantities of cigarettes were also sold in the year by the company to Saudi Arabia, French Somaliland, Bahrein Islands, U.K., Yugoslavia, Afghanistan. Brunei, Burma, Nepal, Iraq and Sri Lanka.

The company's group export of unmanufactured tobacco amounted to Rs. 1520 million during the period 1947-1972. In recent years their export in the line averaged around Rs. 100 million per year. The unmanufactured tobacco sales are organised by their sister concern M/s. Indian Leaf Tobacco Development Company (ILTD).

In an intensified effort towards export diversification, the company succeeded in pushing out non-traditional products whose exports reached Rs. 23.3 million in 1971-72 as compared to a meagre Rs. 1.7 million in the previous year. The company hopes that their non-traditional export value would be soon around Rs. 35 million.

The ITC'S turnover in 1971-72 was Rs. 320 million higher at Rs. 2000 million than in the previous year. The progressive trend of filter tipped cigarettes manufactured by the company has sustained. Their brand of Will's Filter has come to stay as an important filter brand, currently one of the largest brands in the country —closely followed by Bristol filter. Wills Flake filter introduced by them in mid-1971 was an instant success and is claimed as the third largest filter brand in India.

Among the non-traditional products that the company has succeeded in exporting in 1971-72 mention may be made of marine products which earned Rs. 7.36 million. Japan was the major market at Rs. 3.94 million, followed by USA at Rs. 2.95 million. Rs. 4 million worth of blended 'C' rag to Sudan, Myrobalan worth Rs. 0.86 million to U. K. and small quantities of black tamarind and costume jewellery to Japan were among the other areas of the company's export trade in 1971-72.

OVERSEAS SUPPLIES OF ENAMELWARE

India exported synthetic enamels to the tune of Rs. 8.3 million in 1971-72. USSR was the major market having imported Rs. 4.8 million worth of the product. Iraq, Kuwait, Qatar and Burma were the next best markets. In addition to synthetic enamels, India also exports enamel iron utensils, enamel iron fibres and other enamel iron ware. In 1971-72, U.K. was the major importer of enamelled iron utensils. Afghanistan, Burma Nigeria and Uganda were the importers of enamelled iron-ware.

M/s. Bengal Enamel Works Limited, 24, Chittaranjan Avenue, Calcutta 12, is one of India's leading manufacturers of porcelain enamelled house-hold wares, hospital wares, enamel ware for Defence services, Lighting Reflectors and Signboards. Presently the company produces more than 200 kinds of articles for daily use in homes, hospitals, photo studios, shops, offices, etc. Since 1970, the company diversified its range of products and took up manufacture of glaslined chemical vessels and equipment as also sheet metal presssing jobs. Manufacture of cooking stoves and gas cyilnders are another addition to the firm's range of products.

The Calcutta firm has been in the line, particularly for its products like jerricans, mugs, dinner plates, water bottles, chicken roaster, coffee boiler, stew pot, cassarole, sauce pan, cannister, frying pan etc. to countries like U.S,A., West Germany, Jordan, Iraq, Kenya and Burma.

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EXPORT PROGRESS IN TELEPHONE EQUIPMENT

In the first half of 1972-73 (April-September 1972) export value of telephones and equipment was of the order of Rs. 1.14 million. M/s. Indian Telephone Industries, Doorvani Nagar, Bangalore-16, earned foreign exchange worth Rs. 3.21 million during the period 1971-72. The firm anticipates an export turnover of Rs. 5.10 million in the full year of 1972-73.

Among the items exported by the Bangalore firm in recent months (July-September 1972) mention may be made of the supplies to Kenya worth about Rs. 0.3 million. These supplies were for telephone exchange equipment and spares. Exports worth Rs. 0.14 million were effected to Nepal and supplies included auto desk telephones, switching telephones, telephone spares and telephone exchange equipment for 300 lines cross bar exchange. Another important order that the firm has succeeded in completing was in respect of the supply of telephone spares and line transformers worth Rs. 0.13 million to Arab Republic of Egypt. Selector mechanisms were supplied to U. K. Telephone equipment was exported to Zambia. Buttinski Hand telephone and telephone exchange spares were exported to Australia. Among the other orders that the firm had completed in the period mentioned above were the supplies of cross bar telephone exchange spares to Belgium, telecommunication and electronic measuring instruments to Jordan and spares to Malaysia, Singapore, Tanzania and Uganda.

EXPORT DIVERSIFICATION OF A CALCUTTA FIRM

Several established firms in India have come to diversify their export activity and are seeking new avenues of earning foreign exchange. M/s. Shaw Wallace & Company Limited, 4 Bankshall Street, Post Box No. 70, Calcutta-1, a recognised export house, traditionally an exporter of tea, has now spread its export net fairly wide to cover a broad range of products--minerals to agricultural sprayers.

In 1971, the company's exports of tea were of the order of Rs. 25.14 million (Rs. 12 million in 1968). Their steatite exports were of the order of about Rs. 1 million in the same year. Technical gelatine (glue), feed supplement, agricultural sprayers and sterameal were the other products. They were exported at a combined value of about Rs. 0.32 million.

In terms of their manufactured items, the Calcutta firm established markets in Japan, Sri Lanka, Singapore and African and West European countries. The company is active in the field of mineral exports. They have bagged sizeable orders for the supply of vermiculite, china clay, mica and barytes. In the first quarter of 1972 they exported to Japan 98 tonnes of ossein, a new product manufactured by them and earned foreign exchange of Rs. 0.43 million.

Against stiff competition from other suppliers, the Calcutta firm bagged her first export order from Bangladesh for 500 tonnes of china clay powder required by a leading paper mill. Earlier substantial quantities of glue were exported by them through the State Trading Corporation of India Limited.

EXPORT OF TELEPRINTERS

Indian teleprinters are getting wide popularity in the overseas markets in recent years. The demand for these sophisticated items is especially from the Middle East, Far East and Asian countries. M/s. Hindustan Teleprinters Limited exported teleprinters at a value of Rs. 7,17,000 to Singapore, Lebanon, Nepal, and Jordan in 1971-72. The firm turns out type teleprinters, page teleprinters, automatic tape transmitters, tape transmitter adjustments, reperforating adjustments, signalling power supply units, etc.

Earlier also teleprinters were exported to a number of countries by the Madras firm. Today, Nepal, Iran, Kuwait, Bhootan, Sri Lanka, Yemen, etc. are the prominent countries in their export list. The firm has recently launched a programme for expansion and will now raise its production of machines from present 400 numbers to 4000 numbers. The firm is capable of producing teleprinters with versions of different key boards according to requirements of the overseas buyers.

The firm proposes to manufacture peripherals for computors produced by the Electronics Corporation of India in Hyderabad. Electronic typewriters, which are not a product in the manufacturing line of the firm, will also be manufactured by the firm. Considerable progress has already been made in this respect.

EXPORT TRADE IN NYLON FABRICS

Fabrics woven of synthetic fibres were exported by India to the tune of Rs. 28 million in 1971-72. While sarees which fetched Rs. 1.57 million were mainly supplied to Singapore, U.K. and Fiji Islands, over Rs. 1.2 million was earned through the export of nylon brasso, principally to Singapore and Nigeria. Nylon georgette fetched Rs. 3.3 million, the leading importers being the Fiji Islands, Singapore, U.K., Cyprus, South Yemen People's Republic, Qatar and Dubai. Nylon Satin was supplied abroad to the tune of Rs. 1.31 million; Dubai, Singapore, Sudan and U.K. were the major markets. Polyester suiting and shirting as also other polyester fabrics netted Rs. 14.86 million. Sudan was the outstanding market for polyester suiting, followed by Zambia.

Additionally, fabrics woven of regenerated fibres were exported to the level of Rs. 46.90 million. Among these, mill rayon satin accounted for Rs. 3.6 million, mill rayon brocade Rs. 1.14 million, mill rayon tafetta Rs. 8.14 million, mill rayon sarees Rs. 2.78 million and mill rayon shirting Rs. 1.9 million and the mill fabrics Rs. 13.21 million. Velvet is another important item of export in the line having fetched Rs. 10.15 million.

The manufacturer of crimped nylon georgette and crimped shanon satin embroidered, M/s. Shiv Embroidery Manufacturing Company, 91 'Shalimar' 'G' Road, (Post Box No. 2746), Marine Drive, Bombay-2 is one of the successful exporters despite stiff competition from Japan and Korea. Starting with an export worth Rs. 0.28 million during 1969-70, the firm had within two years reached the level of Rs. 1.50 million during 1971-72. The countries to which the firm has effected exports include Australia, U.K., Ethiopia, Malaysia, Mauritius, Fiji Islands, Singapore, Zambia, Kenya, Qatar and Dubai.

The firm is a manufacturer exporter of several varieties including plain or printed and embroidered textile fabrics, poplin and voils.

EXPORT PERFORMANCE AND POTENTIAL

EXPORT IMPROVEMENT IN SILK PRODUCTS

In the first half of 1972-73 (April - September 1972), the export value of silk goods registered improvement at Rs. 35.40 million over the performance of Rs. 33.88 million in the same period of the preceding year. The export improvement was both in respect of mulberry silk and tasar silk products. The mulberry exports were Rs. 29.57 million as against Rs. 28.80 million while tasar exports including muga fabrics fetched Rs. 5.83 million against Rs. 5.10 million. In fact, the export of silk goods at Rs. 7.54 million during September 1972 showed a sizeable rise from Rs. 5.10 million earned in the corresponding month of 1971 and recorded an increase of 50 per cent. This performance has not only dispelled declining trend faced by the silk trade for the past several years but also promises fair chances of improvement in the remaining second half of the year 1972-73.

West Germany continues to be the largest buyer of silk goods and its offtake during April-September 1972 was of the order of Rs. 7.37 million as against Rs. 6.53 million registred in the same period of 1971. France imported worth Rs. 3.24 million as against Rs. 1.83 million. Malaysia, emerged as the next best importer having imported worth Rs. 2.97 million as compared to Rs. 2.74 million. The U.S.A. market absorbed Rs. 2.34 million as against nearly Rs. 3 million. The other important markets were the U.K., Kenya, Japan, Poland and Sweden.

Among the varieties exported, dress material was the major item having earned about Rs. 10 million in the period under review in 1972-73. Silk scarves improved their offtake at Rs. 8.72 million as against Rs. 7.94 million as also the silk sarees were exported in larger volume having fetched Rs. 5.66 million as against Rs. 5.25 million. There was an improvement in respect of readymade garments exports also at Rs. 3.56 million as compared to Rs. 3.03 million.

The export earnings of tasar silk fabric totalled Rs. 5.83 million of which West Germany absorbed Rs. 2.83 million worth while U.S.A., Japan, France, Italy, and Switzeraland shared the fabrics worth Rs. 1.80 million.

Regionwise, mulberry silk goods were exported to the tune of Rs. 6.14 million to Asia (Malaysia and Singapore being the major markets and Rs. 3.64 million) to Africa (Kenya and Mauritius being the principal importers). Thus these traditional markets in the first half of 1971-72 absorbed as much as Rs. 9.78 million. Among the non-traditional markets, West Europe imported Rs. 24.12 million (West Germany's share being Rs. 2.19 million, followed by France at Rs. 9.72 million, U.K. Rs. 2.57 million), East European countries, particularly Poland and Czechoslovakia imported worth Rs. 2 million. The American region absorbed worth Rs. 3.80 million of which the U.S. share was Rs. 3.11 million.

UPTREND IN EXPORT OF NON-METALLIC MINERAL MANUFACTURES

India's Export of non-matallic mineral manufactures including lime, cement and fabricated building materials, pearls and semi precious stones etc. is maintaining uptrend in the recent years. As against Rs. 486.58 million in 1970-71, the exports in 1971-72 netted foreign exchange to the tune of Rs. 587.15 million, recording an increase of over Rs. 100 million. This represents nearly 20 per cent increase in the export trade.

Among the items exported under this division in 1971-72, pearls and precious and semi-precious stones (worked or unworked) constituted the main group which witnessed clear uptrend. The export in this group earned foreign exchange equivalent to Rs. 515.15 million as against Rs. 418.79 million in 1970-71. Cut and uncut diamonds (except industrial diamonds), the most important item in this group, earned as much as Rs. 367.39 million. Belgium was the major buyer accounting for diamond imports worth Rs. 101.30 million. Hong Kong was the second important importing country. Its intake was valued at Rs. 78.07 million, followed by U.S.A. (Rs. 58.08 million); Japan (Rs. 29.91 million); and Netherlands (Rs. 27.88 million). Israel, Singapore, U.K., Malaysia and France were the other prominent purchasers.

During the year under review exports of precious and semi-precious stones were of the order of Rs. 131.30 million. Switzerland was the principal importer with an intake worth Rs. 23.18 million. U.S.A. was the second important importing country accounting for Rs. 20.09 million. France, Federal Republic of Germany, Sweden, Hong Kong, Netheralands, U.K. and Belgium were the other prominent buyers.

Pearls of all types (excluding set or stung) earned foreign exchange equivalent to Rs. 14.36 million. Hong Kong with an import value of Rs. 2.2 million was the leading buyer. The other important buyers included Federal Republic of Germany, France, Switzerland, Singapore and U.S.A.

In the category of mineral manufactures, such as grinding and polishing wheels and stones, abrasive cloth papers, worked mica and articles thereof, mineral insulating material like slag wool and rock wool, manufactures of refractory products (except refractory construction materials), manufactures of asbestos friction materials, etc., the export value improved from Rs. 21.43 million in 1970-71 to Rs. 27.79 million in 1971-72. U.K. emerged as the major importing country for these products followed by Sri Lanka, Hong Kong, Sudan, etc.

Exports of lime, cement and fabricated building materials excluding glass and clay materials also registered an improvement at Rs. 27.93 million during 1971-72 as against Rs. 26 million in 1970-71. Of the total exports during 1971-72, one single item alone, viz., cement (including portland grey, portland white etc.) accounted for Rs. 24.92 million. Next important group under this category was building material of asbestos which included asbestos cement pipes, sheets, tiles, etc. Total exports in this group amounted to Rs. 2.48 million. Exports of building and monumental stones were also effected in this category. Nepal with an import worth Rs. 11.13 million was the major buyer for cement. Uganda, Tanzania and Abu Dhabi were the leading importers for asbestos cement pipes, sheets, etc. Export supplies to these countries amounted to about Rs. 16,85,587, Rs. 5,89,506 and Rs. 4,03,063 respectively.

The overall export earning in this division would have been much more but for decline in the export of glass, glassware, pottery and clay constuction materials and refractory construction materials. During 1971-72 and 1970-71, the export figures for these items were : glass Rs. 6.09 million and Rs. 7.17 million; glassware Rs. 8.38 million and Rs. 10.32 million; pottery Rs. 154,697 and Rs. 192,402 and clay construction materials and refractory construction materials Rs. 1.66 million and Rs. 2.61 million.

During 1971-72, Iraq, Kenya, Malaysia, Mauritius Sudan, Singapore and Yemen Arab Republic, were the leading buyers for glass while Nepal, Dubai, Australia, U.S.S.R., U.S.A., and Afghanistan were the major importers for glassware. Nepal, U.K., Uganda and Zambia emerged as prominent markets for pottery. Arab Republic of Egypt, Nepal, Sri Lanka, Sudan, etc. were the significant purchasers for clay construction materials and refractory construction materials.

BICYCLES EARN MORE FOREIGN EXCHANGE

The exposition of India made bicycles at the International Bicycles and Motor Cycles Exhibition held recently in the Federal Republic of Germany secured export orders to the tune of Rs. 3.6 million.

Besides the firm orders received, negotiations with importing firms are under progress. More than 150 inquiries from a large number of importers and manufacturers of ECM countries, U.K., Scandinavian countries, U.S.A., Canada and Latin America are pending.

Indian bicycles, parts and accessories fetched foreign exchange to the tune of Rs. 80 million during 1971-72 as against Rs. 70.67 million during the preceding year, registering about 15 per cent increase in the exports. During the year (1971-72), bicycles netted Rs. 16.67 million. Nigeria emerged as the biggest importer of Indian bicycles, whose share was of the order of Rs. 5.56 million (42207 numbers), followed by Iran at Rs. 4.04 million (36102 numbers), Zambia at Rs. 1.58 million (11430 numbers), Indonesia at Rs. 1.33 million (9345 numbers) and U.S.A. at Rs. 1.12 million (6677 numbers).

Besides, bicycle parts and accessories were absorbed by a number of countries. Bicycle chains earned Rs. 4.69 million. Nigeria, Malaysia, Malavi, Morocco, Iran, Iraq, Federal Republic of Germany, Ghana, etc. were the prominent destinations for this item. Bicycles' free wheels fetched an much as Rs. 5.26 million and the major importing countries for this item were Nigeria, Thailand, Singapore, Zambia, Yugoslavia, Indonesia, etc. Bicycle hubs were supplied overseas to a level of Rs. 2.44 million. Indonesia, Nigeria, Malavi, Zambia, Thailand, Uganda and U.S.A. were the main buyers. The export values of other parts and accessories were : bicycle rims Rs. 2.60 million, bicycle saddles Rs. 2.47 million, bicycle spokes Rs. 1.30 million, and other bicycle parts Rs. 37.46 million.

EXPORT OF PLASTIC PRODUCTS UP

The first five months (April-August) of 1972-73 recorded improvement in India's export performance of plastic products at Rs. 23.25 million as against Rs. 21.95 million in the same period of 1971-72.

Plastic moulded and extruded goods netted Rs. 4 million as against Rs. 3.28 million in the comparable periods. There was improvement in respect of plastic bangles too at Rs. 1.76 million as against Rs. 1.45 million. Plastic electrical accessories yielded an export earning of Rs. 1.17 million as against Rs. 0.91 million. There was substantial rise in the offtake of polyethylene film sheets and bags. Their export value was of the order of Rs. 1.73 million as compared to a meagre Rs. 0.1 million in the same period of the previous year. Laminates also improved their export performance having netted Rs. 0.35 million as against only Rs. 0.16 million.

Both the felt based and jute-based linoleums have witnessed substantial export uptrend in the period reviewed in 1972-73. Their export value was as much as Rs. 4.50 million as against Rs. 1.52 million in the corresponding period of the previous year.

GOLD MEDAL FOR INDIAN PAVILION IN THE BULGARIA TRADE FAIR

Indian pavilion in the Bulgaria Trade Fair at Plovdiv was awarded the distinction of Gold Medal for excellent exposition of Indian Textiles. The India Day reception was hosted by the Indian Ambassador and the Indian pavilion Director. The highlight of the function was a glittering fashion show of European costumes made from Indian textiles.

The Minister of the Bulgarian Government complemented India on its progress in all the fields and expressed the hope that the present Indo-Bulgarian economic ties would be strengthened manifold in the years to come.

India's export to trade to Bulgaria amounted to Rs. 154.81 million in 1971-72 as compared to Rs. 95.80 million in 1970-71. In the comparable years, India's imports from that country amounted to Rs. 343.09 million and Rs. 115.14 million, respectively.

INDIA'S IMPORT TRADE IN 1971-72

India's import bill in 1971-72 amounted to Rs. 18,120 million. In the preceding year the import value was Rs. 16,342 million.

Compared to 1970-71, the following year witnessed rise in the import of certain categories particularly iron and steel, transport equipment, electrical machinery and apparatus, non-electrical machinery, metal manufactures, paper and paper board, chemicals and petroleum products.

Happily the import bill on account of cereals and preparations fell down sharply to Rs. 1312 million as compared to Rs. 2130 million in 1970-71. Wheat and rice imports were reduced substantially to Rs. 1026 million from Rs. 1734 million and Rs. 181 million from Rs. 298 million respectively.

In respect of fruits and vegetables too sizeable import saving was noticeable-Rs. 378 million in 1971-72 as against Rs. 432 million in the preceding year. Import of fresh fruits and nuts was reduced from Rs. 358 million to Rs. 316 million. Likewise there was a fall in respect of dry fruit imports from Rs. 71 million to Rs. 58 million.

The group of petroleum products registered substantial rise in imports. While in 1970-71 the import value was only Rs. 1359 million, in the subsequent year it was of the level of Rs. 1941 million owing to increased domestic demand.

Understandably, the import bill went up in such areas where indigenous demand increased. These areas of manufacture included chemicals, machinery and transport equipment. As for chemicals, the rise in import bill was alike for organic and inorganic chemicals, medicinal and pharmaceutical products and manufactured fertilizers. Import of dyeing, tanning and colouring materials was, however, reduced due to improved domestic production; the import value came down to Rs. 82 million from over Rs. 92 million. The import saving in this category was effected for not only dyestuffs, but paints and varnishes also.

Paper and paper board was another area where imports had to be increased because of rising domestic demand. The import bill in 1971-72 was Rs. 346.96 million as compared to Rs. 248.45 million in the preceding year.

Iron and steel imports were of the order of Rs. 2376 million as compared to Rs. 1470 million in the comparable years. Rise in imports was particularly evident in universals, plates and sheets as also iron and steel bars, rods and angles. The traditional area of import namely, non-ferrous metals revealed sizeable fall. As against Rs. 1194 million worth of these materials imported in 1970-71, the following year registered a value of Rs. 1098 million only. The import reduction was in respect of copper, nickel, lead, zinc and tin.

Indeed, this is a reflection of the import substitution efforts made by the Indian industry in respect of some of the non-ferrous metals.

The machinery and transport equipment group is the outstanding area of import expansion. Although the import bill was only marginally high in respect of non-electrical machinery, the value of imports rose sizeably for electrical machinery and apparatus and transport equipment. The import figures for 1971-72 and 1970-71 were : Rs. 2680 million as against Rs. 2578 million for non-electrical machinery; Rs. 1019 million against Rs. 703 million for electrical machinery and apparatus; and Rs. 844 million as compared to Rs. 665 million for transport equipment.

Interestingly, the import of scientific, medical, optical and measuring and controlling instrument and apparatus came down to Rs. 127 million from Rs. 138 million. Likewise imports have also fallen for a variety of items such as sanitary and plumbing fixtures, ores and scrap, sulphur, crude fertilizers, wool and other animal hair, wood, lumber and cork, crude rubber etc.

The direction pattern of India's import trade in 1971-72 revealed that the imports from Africa, North America, Latin America and Europe were reduced while purchases from ECAFE and other Asian countries, European Common Market countries and European Free Trade Area countries rose substantially. As compared to Rs. 1698 million worth of products imported from Africa in 1970-71, the value came down to Rs. 1438 million in the following year in respect of Africa. Imports were less from North America at Rs. 5293 million as against Rs. 5702 million. From the United States, the largest source of imports in the year 1971-72, the import bill fell down from Rs. 4530 million to Rs. 4165 million. Purchases from Latin America was more than halved - from Rs. 143 million to Rs. 57 million.

From East Europe, the total imports came down to Rs. 2018 million compared to Rs. 2277 million in the previous year. The major reduction was from USSR—Rs. 865 million in 1971-72 as against Rs. 1061 million in 1970-71. Among other East European countries, Indian purchases came down from Bulgaria, Czechoslovakia, Hungary, Rumania and Yugoslavia. In fact, from Czechoslovakia the imports came down from Rs. 202 million to Rs. 102 million. The imports, however, were up from Poland and German Democratic Republic.

In Western Europe, the ECM countries supplied goods to India worth Rs. 2493 million in 1971-72 as against Rs. 1884 million in the preceding year. The import rise was especially noticeable in the case of West Germany (Rs. 1239 million as against Rs. 1075 million). In the EFTA region, India's imports from United Kingdom rose to Rs. 2169 million from Rs. 1268 million in the comparable years. From the entire EFTA group, India imported worth Rs. 2468 million as against Rs. 1560 million. Imports fell however from Italy in the ECM group and from Denmark and Switzerland in the EFTA group.

In Asia, the ECAEF region exported more to India in 1971-72 than in the previous year. The comparable figures were Rs. 3613 million and Rs. 2644 million. Japan and Iran were the two major markets from whom India imported more. In case of Japan, India's purchases rose to Rs. 1615 million as compared to Rs. 834 million while from Iran, they were Rs. 1264 million and Rs. 916 million. From many ECAFE countries, however, India imported less. They include Afghanistan, Australia, Burma, Sri Lanka, Indonesia, Malaysia, Philippines and Thailand. In respect of Hongkong, Koreas, Nepal, New Zealand and Singapore, India imported more. Among other Asian markets (non-ECAFE); large import expansion was registered from Kuwait, South Yemen People's Republic and Saudi Arabia.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

SELF - SUFFICIENCY IN OIL PRODUCTION

Major projects and programmes have been undertaken by the Government of India to achieve self-sufficiency both in the production of crude oil and refining capacity in order to meet the rising demand of petroleum and petroleum products in the country.

The Oil and Natural Gas Commission (O.N.G.C.) is to intensify its efforts for oil exploration and production in the coming five years. The operations costing over Rs. 6,000 million during this period aim at discovery of additional oil reserves which would take the Commission's rate of crude oil production to 8 million tonnes per year by the end of 1978. In addition to its operations on land, ONGC is to shortly embark upon a programme of drilling in the deep waters of the Arabian sea. The seismic surveys conducted in this area had revealed existence of promising structures in what is called 'Bombay High' and adjoining areas.

In the field of oil refining, the public sector in the country has been playing an increasingly predominant role and has at present a major share in the total refining capacity of the country. A new refinery at Haldia and expansion of the Cochin Refinery will materialise in the next few months. Expansion of the refineries at Barauni and Koyali will also be completed in the foreseeable future. Government of India has decided to set up a new refinery, integrated with the Petro-chemical complex at Bongaigaon in Assam and six-million tonnes refinery near Mathura.

These major projects will take the country several stages ahead in the direction of self-sufficiency in petroleum refining. The new projects which are now being formulated for the Fifth Five Year Plan will also be aimed at achieving and maintaining self-sufficiency in petroleum refining so as to minimise and perhaps eliminate imports of refined products.

A joint sector organisation in India, Oil India, Ltd., is engaged in exploration, production and transportation of crude oil. They are endeavouring to accomplish the task of speedy exploration of some of the promising areas in Arunachal Pradesh for discovery of new oil reserves.

DEVELOPMENT OF WOOLLEN INDUSTRY

India ranks fifth among the major sheep rearing countries of the world and possesses more than 40 million sheep. In spite of India's important position in possession of sheep, productivity of Indian sheep is comparatively much less as compared to sheep in other countries. Average yield per Indian sheep is only 1.9 lbs while yield per Australian sheep is 9.0 lbs.

In the past few years, many positive steps have been taken to improve the productivity and quality of wool of Indian sheep numbering about 40 million. With this object the Central Sheep and Wool Research Institute at Rajasthan was set up. The Institute's two substations at Kulu in Himachal Pradesh and at Kodaikanal in Tamil Nadu have also been set up. India has in all 32 sheep breeding farms, 503 sheep and wool extension centres and 6 sheep shearing wool grading and marketing centres. During the Fourth Five Year Plan, it is envisaged to set up additionally 13 sheep breeding farms, 50 sheep and wool extension centres and 5 sheep shearing, wool grading and marketing centres. Through the various experiments conducted at different centres, it was evolved that by scientific cross breeding in the merino sheep, substantial improvement in quality can be achieved. Besides through the experiments of artificial insemination carried out at sheep research station at Jaipur and the Central Institute at Malpura, it was observed that cross breeding of Indian sheep with merino sheep gave 15 to 30 per cent coloured pryemes. Further experiments were carried out with Spanish, Merino carriedale, Polworth and Rambouillet sheep. To get quality wool, through cross breeding, India began importing different kinds of sheep from the various countries in recent years. India has this year imported, 2680 Merino sheep, in batches of about 330 each, from the USSR for the States of Jammu & Kashmir, Uttar Pradesh and Tamil Nadu.

As part of a comprehensive sheep and wool development programme, taken up in different states, through cross breeding, an import of 10,000 sheep of fine wool varieties–Merino from USSR and Rambouillet from USA–is envisaged in the Fourth Plan. Last year, 2,581 Rambouillet sheep and 3,090 Merino sheep were imported. They were supplied to State Sheep Breeding Farms in Jammu & Kashmir, Himachal Pradesh, Gujarat, Maharashtra, Uttar Pradesh, Rajasthan and Mysore for production of stud quality males.

The Merino sheep species from USSR are well known both for their productivity and fine quality wool. The rams of this breed produce on an average 9 kgs. of wool, the maximum being 14 kgs. The ewes on an average produce 7 kgs. up to a maximum of 9 kgs. This superfine wool is of 64's quality and is extremely suitable for dress materials.

The earlier trials of cross-breeding the local sheep with Merinos have shown that the progeny produced on an average 2.5 kgs. of wool of 56's to 58's quality against 1 kg. of coarse wool produced by the former species. Besides being well acclimatised, the new progeny assured better wool both qualitatively and quantitatively. In view of these encouraging results obtained so far, large-scale programme of cross-breeding will be taken up in the year to come.

STATE OF AGRICULTURE IN INDIA

The last six years in India could be described as a period of dynamic growth of agriculture. Wheat production touched a new high and the efforts to improve production of other commodities also bore fruit. The country's agricultural policy aims as much at raising output as at ensuring socio-economic justice for weaker sections of the society. India has been giving and is prepared to give further cooperation in sharing her knowledge and available facilities with other countries. She would also like to take advantage of the advances made in other countries in agricultural technology, stated India's representative at the Eleventh Food and Agriculture Organisations (FAO) Regional Conference for Asia and Far East.

The ECAFE region as a whole witnessed decline in its share in world trade in agricultural exports. The share declined from 15.6 per cent in 1960 to 10.3 per cent in 1971. It is indeed an un-favourable development in view of the fact that the countries of this region heavily depend on exports of agricultural commodities for earning their foreign exchange. Future prospects for exports of a number of commodities of the ECAFE region-tea, jute, copra, rubber, oilseed, oilcake, food-grains etc., are not bright either. The terms of trade in the region have been deteriorating. All these contribute to the growing disparity between the incomes in countries of the region and the developed countries of the world.

As for India's state of agriculture, there had been considerable widening and strengthening of the production base during the last 25 years since indepedence. The country's irrigated area under crops nearly doubled to 40 million hectares. The gross crop area rose by 50 per cent. Fertilizer consumption went up from less than 80,000 tonnes per annum to about 2.6 million tonnes. In the quinquiennium ending 1971-72, wheat output more than doubled to reach the level of over 25 million tonnes. Some progress was achieved in raising the output of rice also. Cotton production registered a record crop of 6.5 million bales of lint in 1971-72. In coarse grains, hybrid varieties generally gave a good account of themselves. Research in dry farming is being intensified. The country attaches special importance to this programme in view of the fact that a large proportion of cultivated area did not have assured irrigation facilities.

Total food production in 1972-73 crop year is expected to be a few million tonnes more than the preceding year's 106 million tonnes, notwithstanding the fact that monsoon in the year was highly erratic. The expectation is based on the progress registered in the emergency production programmes of Kharif season as also the Government's determination to provide a further boost to the emergency programmes in the Rabi season. It was feared that the bad monsoon might cause a 15 million tonnes loss of production in the Kharif season but the emergency programmes are estimated to have yielded about 4 million tonnes thus reducing Kharif production to 11 million tonnes. Intensive efforts that are already being put through for the Rabi season are expected to yield 15 million tonnes more than the Rabi season last year.

PROCEDURE FOR HOTEL PAYMENTS FOR FOREIGNERS

Effective from November 1, 1972, the procedure for receipt of payments from foreigners as well as from Indian residents outside India for their hotel bills in foreign exchange has been outlined. The hotels have been asked to display placard at their counter informing foreigners that they should pay their bills in foreign exchange. In respet of bills so paid, an endorsement would be made on the receipt to the effect that payment has been made in foreign exchange.

Payments from travel agents, airlines etc. for services rendered to foreign tourists would be received only if they are accompanied by a certificate from a bank in India authorised to deal in foreign exchange to the effect that the funds for the purpose have been received in India from the banking channels.

The payments for hotel bills in Indian rupee will, however, be accepted from accreditted diplomats and foreign employees of diplomatic missions, foreign nationals employed in India, nationals of Bulgaria, German Democratic Republic, Poland, Soviet Union, Yugoslavia and Rumania with whom India has rupee payment arrangements. Employees of airlines, shipping companies who are specifically authorised to make payments in Indian rupees are also included in this category. Foreign nationals invited to India and staying as guests of the Government of India or of any other authority or company owned by Government or any public limited company engaged in manufacture or commerce in goods exportable from India will also be permitted to pay in rupees. Persons on whose behalf special permission for hosting has been obtained by any Indian organisation or company from the appropriate Government Department will also be included in the category.

To avoid inconvenience to foreign tourists hotel managements have been requested to ensure that they are not required to complete or fill up any additional proforma etc.

In respect of foreign exchange earned by hotels on the basis of this scheme, hotels are entitled to use 10 per cent thereof for purposes like publicity abroad, promotional tours, import of goods for equiment required for running the hotel etc. Actual release of foreign exchange for any of these purposes will, however, be subject to the approval of the Department of Tourism, Government of India. In regard to imports such approval will be given only with the concurrence of the Directorate General of Technical Development, Ministry of Industrial Development.

BAUXITE DEPOSITS IN GOA

Sizeable deposits of bauxite of varying grades, suitable to meet domestic and export requirements of the country have been located in the union territory of Goa. These reserves are distributed over an area of 140 kilometers along the West Coast. The reserves are of low to medium grade and are in the form of gibbsite.

Besides bauxite, large reserves of iron and manganese are also located in Goa. Annual export of iron ore from Goa is about 8 million tonnes while that of manganese ore are about 50,000 tonnes. Bauxite is also exported from Goa.

Recoverable reserves of manganese ore in this area are around 1.2 million tonnes and those of black iron or ore are 600,000 tonnes.

In India, bauxite chiefly occurs in association with laterite. Besides Goa, bauxite deposits mainly occur in Bihar, Gujarat, Madhya Pradesh, Maharashtra, Mysore, Tamil Nadu and Utter Pradesh. It occurs in various grades, the alumina content varyin from 43 to 80 per cent.

The total production of bauxite in 1970 was of the order of 1.36 million tonnes. In the preceding year (1969) it was recorded at 11.07 million tonnes. In 1970, the staterine production of bauxite was : Bihar 493,200 tonnes, Goa 74,600 tonnes, Gujarat 244500 tonnes, Madhya Pradesh 236,1000 tonnes, Maharashtra 121,400 tonnes, Mysore 85,300 tonnes, Tamil Nadu 80,800 tonnes and Uttar Pradesh 19,900 tonnes. India's export of bauxite in 1970-71 was of the order of Rs. 6.57 million and Czechoslovakia, Japan and U. K. were the main markets. In the year 1971-72, bauxite exports fetched Rs. 4.34 million.

SPECIAL HELICOPTER MANUFACTURED

The State owned Hindustan Aeronautics Limited Bangalore, has recently crossed an important milestone in the specialized field of helicopter production. The first light-weight multirole helicopter manufactured by them has completed a series of test flights and is soon to be handed over to the Indian Air Force.

This aircraft, second in the family of helicopters being manufactured by the Bangalore firm, marks a significant stage in the programme towards self-reliance. It is a precursor to the one to be produced on completely indigenous design. Named 'Cheeta', the helicopter has a high power reserve with an exceptional high altitude performance capability and can accommodate five persons including the pilot. It can also be useful for crew training, passenger transportation, aerial rescue and ambulance duties at high altitudes in mountainous terrain. It can also carry additional load equal to its own weight.

SICK MILLS EARN FOREIGN EXCHANGE

The textile export orders valued at Rs. 80 million are on hand with the National Textile Corporation, the public sector undertaking set up for the development of textile industry of India. Besides earning valuable foreign exchange for the country, the Corporation is presently managing a number of mills. The mills are producing annually controlled cloth over 100 million square metres. So far the corporation has taken over the management of 54 'sick' or closed textile mills. Of these mills, 40 are engaged in the production of cloth while 22 are now running on profit. To make available mill cloth at less expensive rates to the rural population, the Corporation has opened 50 fair price shops in rural areas till now. It has further plans to open 100 more such shops in the next 6 months. With an aim to sell cloth at the doors of the consumers at various levels, it has also started truck mounted mobile shops to provide controlled cloth to the very door-step of consumers. These mobile shops go even to remote areas, and weekly markets. In the field of employment also, the Corporation by taking over the management of 'sick' mills, has restored employment of over 1,20,000 workers.

SELF-SUFFICIENCY IN SMALL-POX VACCINE

India will be self-sufficient in freeze dried small-pox vaccine by 1973-74. The production of four institutes engaged in the manufacture is being stepped up to meet the entire requirement of the country.

Two new semi-industrial type of freeze dryers are under installation at the State Vaccine Institute, Patwadangar, and Vaccine Institute, Belgaum. With the commissioning of these two units, the production of small-pox vaccine will be increased by 30 million doses in the current year.

The present production capacity of the four vaccine producing institutions is 61 million doses. With the installation of the new freeze dryers, the production of these institutes will be stepped up as follows: State Vaccine Institute, Patwadangar (U.P.), from 16 million doses to 64 million doses; Vaccine Institute, Belgaum (Mysore), from 21 million doses to 47 million doses; Kings Institute, Guindy, from 17 million doses to 24 million doses, and Institute of Preventive Medicine, Hyderadad, from 7 million doses to 21 million doses. During April-August, 1972, 26.5 million doses have been produced. The annual requirement of vaccine is 156 million doses.

RECORD COTTON PRODUCTION ACHIEVED

As against the revised estimates of area and quantum of production of cotton crop during 1971-72 which were placed at 76,05,100 hectares and 4.5 million bales of 180 kilograms each, the year witnessed a record increase by 15 per cent in the production of cotton, breaking the all time high record production of 5.68 million bales achieved in the year 1964-65.

This increase in cotton production during the year under review was shared by all the major cotton growing states of the country. This improvement was due to increase in the area under cotton cultivation and secondly because of high yield arising out of favourable weather conditions during the year. The increase in the area under cotton crop was reported in the States of Gujarat, Rajasthan, Punjab, Mysore, Haryana and Andhra Pradesh because of favourable weather conditions at the sowing time. The increase in the production of cotton was shared by all the major cotton growing states.

ARTIFICIAL FIBRE PLANT COMMISSIONED

An artificial fibre plant set up at Ujjain in Madhya Pradesh, costing Rs. 73.5 million went on production stream recently. The plant is engaged in manufacture of nylon and polyester filmament yarn. The installed annual production capacity of the plant is placed at 1100 tonnes. Beginning with trial production, the plant will commence its commercial production with in the period of a month. The plant is spread over an area of 115 acres. The annual production of the plant would aggregate to Rs. 8500 million in foreign exchange by curtailing import of nylon filament yarn. The basic raw material of the plant, caprolactum, presently being imported, would be made available next year by the Gujarat State Fertiliser Corporation at Baroda.

There are in all 5 such plants in the country producing about 13,000 tonnes of nylon filament yarn as against estimated demand of 29,000 tonnes per annum.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

ELECTRIC RELAY TESTER DEVELOPED

An electric relay tester has been developed and patented by the Central Mining Research Station, Dhanbad, Bihar. The developed tester is available for commercial exploitation.

The developed tester is essentially for testing and calibration of various types of electrical relays, such as over current relays, no volt relays, low volt relays for remote control circuit, volt meters and ammeters etc., used in connection with switchgears, starters, gate-end boxes, drill panels, etc. in mining and other industries.

The new device consists of one regulator, one step up transformer and one current transformer along-with other accessories such as mains switch, main fuse indicating lamps, fuse, voltmeter, ammeter.

The components required for fabrication of the device can be available indigenously at a low cost. The developed relay tester ensures quick and efficient testing and calibration of various types of electrical relays for preventive maintenance and repairing purposes. At present there is no other such device existing for electrical applicances used in the mining and allied industries. The tester can also be useful for electrical workshops dealing in maintenance and other jobs.

SPECTROPHOTOMETER DEVELOPED

An instrument, namely Direct Reading Spectrophotometer/Colorimeter, has been recently fabricated by the National Chemical Laboratory (NCL), Poona, by using grating as a dispressing element.

The fabricated new instrument is used in biochemical research and as a test for spectroscopic analysis in the visible range. The wavelength range of the developed instrument is 3500 to 7000 Angstroms. The newly fabricated instrument can be compared with the imported instruments of such types. The instrument can be manufactured on commercial basis at comparatively low cost as compared to the imported one.

NEW DUPLICATOR DEVELOPED

A small offset duplicator "Swift 150" useful for commercial, industrial, and pharmaceutical houses, local authorities, universities, schools and other organisations has been developed indigenously by M/s. Swifts Private Limited, a small scale unit in Bombay.

The developed duplicator is claimed to be the first of its kind in India and can be used economically and conveniently in place of the conventional duplicating equipment. The machine compares favourably with a similar imported machine in quality and price.

COMPOSITION OF INDIA'S IMPORT TRADE

(Rs. in million)

Commodity	April - March	
	1970-71	1971-72
Dairy products and eggs	**106.30**	**208.13**
a) Milk and cream	83.26	189.90
Cereals and cereal preparations	**2130.11**	**1312.06**
a) Wheat	1733.70	1026.04
b) Rice	298.16	180.73
Fruits and vegetables	**431.97**	**378.42**
a) Fresh fruits and nuts	358.20	316.22
Pulp and waste paper	122.66	95.76
Textile fibres and waste	**1267.22**	**1382.33**
a) Wool and other animal hair	160.72	142.35
b) Cotton	988.45	1133.89
Crude fertiliser and crude minerals	352.75	363.98
Petroleum and products	**1358.90**	**1941.39**
a) Petroleum, crude and partly refined	1058.95	1474.73
b) Petroleum products	299.95	466.66
Animal oils and fats	151.25	179.10
Fixed vegetable oils and fats	230.75	281.71
Chemical elements and compounds	**679.85**	**718.38**
a) Organic chemicals	526.98	518.94
b) Inorganic chemicals	152.88	199.43
Medicinal and pharmaceutical products	242.68	265.57
Manufactured fertilisers	611.96	811.99
Paper, paper board and manufactures	250.71	348.87
Non-metallic mineral manufactures	**332.85**	**399.12**
a) Pearls, precious and semi-precious stones	245.74	263.34
Iron and Steel	**1470.36**	**2375.68**
a) Ingots and other primary forms	38.31	126.92
b) Iron and steel bars, rods, angles, shapes and sections	181.19	347.06
c) Universals, plates and sheets	957.29	1423.71
d) Tubes, pipes and fittings	129.62	173.09
Non-ferrous metals	**1194.33**	**1017.64**
a) Copper	602.00	511.80
b) Nickel	124.14	63.58
c) Aluminium	33.55	93.23
d) Lead	97.76	76.28
e) Zinc	219.68	177.31
Machinery other than electric	**2578.10**	**2679.96**
a) Power generating machinery	232.29	291.95
b) Agricultural machinery and implement	278.47	256.04
c) Metal working machinery	206.92	239.89
d) Machines for special industries	297.90	295.52
Electrical machinery, apparatus and appliances	**703.49**	**1018.56**
a) Electrical power machinery and switchgear	313.45	375.97
Transport Equipment	**665.35**	**844.00**
a) Railway vehicles	140.07	199.39
b) Road motor vehicles	234.47	357.34
c) Aircrafts	270.37	265.53
Professional, scientific and controlling instruments, photographic and optical goods, watches and clocks.	243.39	237.51
Total including other items	**16341.97**	**18120.17**

Source : Department of Commercial Intelligence and Statistics, Calcutta.

SILK INDUSTRY

India ranks prominently among the silk producing countries of the world. The output of silk which was recorded at 1.24 million kg. in 1949 reached a level of 2.84 million kg. in 1970. Mulberry silk which is considered to be the best type of silk in the world, is produced in India in bulk. During the past decade production of mulberry silk has risen from 1154 tonnes in 1960 to 2758 tonnes in 1970, registering about 100 per cent increase in the production. Today, India's total production is more than 40 million square metres inclusive of all the varieties. Overall production of the sericulture industry today consists of 2.7 million kg. of raw silk valued at about Rs. 400 million and estimated 35 million square metres of pure silk fabrics valued over Rs. 500 million.

India occupies a significant position in the production of other varieties of silk besides mulberry silk, including tasar silk, eri silk and muga silk. India is in fact the biggest producer of muga silk in the world. It ranks second in the world in the production of tasar silk, next to China. In the field of mulberry silk production, the country occupies fifth place among the mulberry silk producing countries.

Mysore, West Bengal and Jammu and Kashmir States of India are the main mulberry silk producing areas and they contribute over 95 per cent of the country's total production of mulberry silk. Muga silk and eri silk, the other important varieties of silk, are mainly produced in the State of Assam while the production of tasar silk is confined to Bihar, Madhya Pradesh and Orissa. Besides, a scheme has also been evolved to undertake production of tasar raw silk in the sub-Himalayan belt.

The area under mulberry raw silk rose from 45580 hectares in 1945 to 98,575 hectares in 1970. In 1970, the total number of mulberry trees for reeling was about 3.95 million. Of the total silk production of 2845 tonnes in 1970, mulberry variety constituted the bulk of production at 2260 tonnes and 585 tonnes of non-mulberry varieties. In that year, mulberry reeling sector had 1470 filature besins, 4180 cottage basins and 8877 charkhas (spinning wheels). The silk weaving sector had 119,625 handlooms and 3205 power looms. The production of silk fabrics during that year consisted of 36.10 million square metres of mulberry varieties, 4.10 million square metres of spun silk varieties.

A characteristic feature of Indian silk is the disciplined creation of designs. The popular Indian motifs are paisely, trefoil, birds, animals, natural objects and geometrical patterns like strips, polka dots, squares and triangles. The most significant feature of Indian silk which made it universally popular is the traditional craftsmanship and the rare hand weave fabrics which stand out in bold contrast to the monotony of machine made fabrics. Varanasi, the major silk weaving centre in the country produces kinkhabs-brocade embelished with flower designs. Kinkhabs are produced out of special technique with cute craftsmanship and precision. Kinkhab is used for exquisite dresses. Dupions woven from handspun coarse yarn of mulberry silk are regarded as trend setters of world-fashion. Dupions are liked in solid colours and seldom printed. Subdued silver and garish gold are the popular colours. The fall and weight of dupions have been aptly exploited by dress designers abroad. Tasar fabrics are universally known for their exquisite colour tints, particularly the shades of emerald, beige and sapphire and the golden tones. Their prominent characteristics are vibrance and weightlessness, unclassical nubby texture, photogenic quality and their quality to travel without wearing the wrinkles. These special qualities of tassar fabrics have made them popular at home as well as abroad.

Besides the Phulkari creation of flowers by embriodery, Himroo silk handloom products from Aurangabad, Baluchar silk sarees of Murshidabad and several varieties of silk manufactured in Madras, Mysore and Assam, etc. are not only popular in India but also in numerous fashion centres of the world. Indian silk sarees are used for preparation of a variety of elegant dresses like jackets, suits and evening dresses.

The export side of the sericulture industry is bright. Irrespective of the development of artificial silk fabrics in the world, the natural silks and products from India retain their popularity and utility at home and abroad because of their supreme qualities and eloquent designs, colours, and superfine textures. The exports of Indian silk goods including fabrics netted foreign exchange to the tune of Rs. 142.32 million in 1970. Interestingly, the exports rose to this level from a small figure of Rs. 4.13 million in 1949. In coming years, the prospects of Indian silk goods exports are very bright owing to recession in the Japaness silk industry. Because of heavy domestic

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consumption of raw silk in Japan, exports from that country have come to standstill. Thus their is great scope for Indian silk and silk goods exporters to fill the gap created by Japan.

During 1970-71 export of silk goods amounted to 6.22 million square metres valued at Rs. 100.59 million. Of this, mulberry silk varieties accounted for 5.55 million square metres valued at Rs. 88.64 million, while tasar and other varieties had a share of 0.67 million sq. metres at Rs. 11.95 million.

Federal Republic of Germany was the leading buyer with an intake worth Rs. 26.09 million followed by USA, Japan, Malaysia and U.K. Besides, France, Italy, Sweden, Netherlands, Switzerland, Denmark, Canada, Kenya, etc. were the other prominent destinations.

The exports of silk and silk products during 1971-72, however, declined to Rs. 75.9 million. The declining trend in exports in the last few years is being closely examined by the Indian Government and the exporters alike. The production and marketing techniques are being gradually turned in line with the fashion requirements abroad.

During the first half of 1972-73 (April-September 1972) the aggregate exports were recorded as much as Rs. 35.40 million as against Rs. 33.88 million in the corresponding period of the previous year. Of the total export value during 6 months (April-September 1972), mulberry variety accounted for Rs. 29.57 million registering a marginal increase over the export value of this item in the preceding year (Rs. 29.79 million) while Tasar and Muga varieties together netted Rs. 5.83 million, registering a slight increase over the export performance during the same period of the previous year.

During this period, Federal Republic of Germany, U.S.A., France, Kenya, Poland, U.K., Malaysia, Japan, Sweden, Switzerland, Australia, Italy, Demark, Belgium, Hong Kong, etc. were the important destinations.

The Central Silk Board, set up in 1948 for the development of this industry, played an important role in building up the basic organisation for the silk industry at Central and State Government levels. At the state level, seed organisation, modernisation of rearing and reeling techniques, organisation of cooperation etc. is undertaken. At the Central level, research training and basic seed production activities are undertaken. The Central Sericultural Research Station at Berhampore is engaged in the research work in addition to the two other research Institutes set up at Mysore and Bihar. In order to impart training to the personnel employed in the industry, All India Sericultural Training Institute was also set up in 1958. For the purpose of production and supply of basic seeds, the Central Silkworm Seed Station at Srinagar in Jammu & Kashmir was also set up in 1968. Besides these institutions, a number of other silkworm silk stations have been established in the country. ☐

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RADIATORS AND HEAT EXCHANGERS ON EXPORT FRONT

Automotive and other engineering ancillaries are sought from India by several markets abroad including the U.S.A. and U.K. The obvious reasoning for even the industrially advanced countries to import the ancillaries from India is that the production costs are more favourable in India in view of the less expensive labour content in their manufacture. Also, the Indian products, are competent in quality, are of international standard, and hence are readily applicable to various end uses at the importing end.

A wide variety of automotive and other engineering ancillaries are successfully exported by M/s. Teksons Private Ltd., Modi Chambers, Bombay-4. Their manufacturing and export range includes : radiators for automotive and industrial applications, oil coolers and heat exchangers for automotive and industrial machines, fuel and oil hoses for automotive applications; brake hose assembly for automotive applications, hydraulic hoses for industrial applications, and snap-on couplings for industrial applications.

The firm's export graph has been rising year after year. In 1969 their foreign exchange earning was of the order of over Rs. 3 million while in 1970, it rose to Rs. 4.77 million and to Rs. 5.59 million in 1971. Nearly one third of their total production is on export stream. A recognised export house, the company has already made a breakthrough in Afro-Asian countries and the free currency areas of West Europe and America.

The firm has facilities for product adaptation to cater to special toolings. Their efforts towards inplant research and product development have helped them to satisfy many of the exacting customers abroad.

MACHINE TOOLS TO POLAND

From a value of Rs. 6.6 million in 1966-67, India's export trade in machine tools reached a level of Rs. 28.4 million in 1970-71. For 1971-72, the export value was about Rs. 31 million.

The major items of machine tools which figure prominently in the export trade include lathes, boring, broaching, drilling and threading machines; milling, planning, shaping, gear cutting and slotting machines; grinding, lapping, honing, polishing, sewing and filing machines; metal farming machines, hydraulic presses, rotary shearers; punching, shearing, forging and rivet machines.

Machine tools from India are being imported by a larger number of countries of the world including some industrially advanced nations. The major importers are Netherlands, Federal Republic of Germany, Australia, Sri Lanka, USA, Canada, U. K. New Zealand, Malaysia, etc.

M/s. 'Metalexport' of Poland has recently concluded a contract with M/s. Hindustan Machine Tools, Bangalore, for importing machine tools valued at Rs. 8 million. This is the first time that Poland is importing from India these sophisticated precision machine tools in such a large quantity. In 1965, Poland purchased from the Indian firm 82 machines, valued at Rs. 2.8 million.

Under the present agreement, the Hindustan Machine Tools would be supplying to the Polish firm 100 radial drills manufactured at Bangalore unit and an equal number of milling machines from its Pinjore unit. The first batch of 40 machines would be despatched to Poland before the end of the current year.

India's production of machine tools shot up to Rs. 450 million in 1971 from Rs. 10.8 million in 1956, Rs. 270 million in 1969 and Rs. 382 million in 1970. In 1971, there were 74 units in the organised sector, engaged in the manufacture of machine tools, in the country with an installed capacity of the order of Rs. 670 million. With increasing production, the percentage of imports to the total requirements of machine tools dropped from 61.4 per cent in 1966 to 33.6 per cent in 1970.

AIR CONDITIONING EQUIPMENT ON EXPORT STREAM

Indin's Export value of refrigerators and air conditioning equipment and appliances amounted to Rs. 9 million during 1971-72 as against Rs. 6.13 million in the preceding year, registering about 50 per cent increase. Interestingly, the export value rose to this level from a small amount of Rs. 305,000 in 1960-61.

The exports effected during the year 1971-72 included domestic refrigerators, air cooling machinery, ice making machinery, water coolers and accessories. During the year, M/s. Frick India Limited, 13/3, Mathura Road, Faridabad, has been able to export complete ice plants and airconditioning equipment to Malaysia, Indonesia, Sri Lanka, Vietnam, Philippines, Singapore, Kuwait, and Saudi Arabia at a value of Rs. 1.6 million.

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The firm is an established exporter with large turnkey contracts to its credit such as for the installation and supply of complete refrigeration plants for slaughter houses in Greece and Cyprus. The firm has also secured an export order for the supply of cold storage equipment worth over Rs. 250,000 to Hong Kong. (For details, the success story of the firm in Vol. II No. 39 dt. September 23,1972, may be referred to).

TEA MACHINERY IN EXPORT TRADE

Manufacturing of tea processing machinery in India has reached a competent level of sophistication in regard to the range, volume and quality of production. The total installed capacity of six units in the line was of the order of Rs. 25 million in 1971 and their output was nearly Rs. 10 million. The machinery manufactured includes heavy duty tea rollers for rupturing tea leaf cells, green tea leaf sifters, tea cutters, magnetic tea cleaners, CTC machines for crushing, tearing and curing tea leaves, CTC segments, CTC trolleys, multi-tubular and multi-cellular air heaters, tea packers, fluff dust extraction plants, tea sorters, tea storage bins, tea weathering machines, tea conveyors, conveyor rollers, etc.

Tea machines have already entered the export field. The export value of tea leaf cutting or rolling machines was of the order of about Rs. 2.42 million in 1971-72.

M/s. Steelworth Private Limited, exporter and manufacturer of tea machinery in Assam, with factories at Tinsukia and Tezpur, have succeeded in exporting tea machinery worth about Rs. 3.82 million during the period 1968-69 to 1971-72. The exports during 1971-72 amounted to Rs. 820,000. "Tea-master", CTC (crush, tear and curl) machines, manufactured by M/s. Steelworth for tea processing are very popular abroad. These are exported to countries like Kenya, Uganda, Tanzania, Mauritius and Iran.

The Company is engaged in the production of a wide range of products, such as, CTC segments, rolling shutters, patented glass cutter, the new induced air heater, the miracle roller checking jig trailers, trolleys and carts, conveyors, hydraulic floor cranes, steel doors, windows, ventilators, chimneys, structurals, tubular steel poles, oil and water storage tanks, CTC fermenters, prefabricated withering troughs, sifters, ferrous and non-ferrous castings, etc.

The firm has a research and development unit also. They have developed a modern and efficient continuous tea drier (CTD) called 'Drycon', for drying fermented tea leaves. The CTD is the only dryer which features a series of wide wheeled trays that carry leaf from feed to discharge without tilting. It introduces a continuous process whereby the same tray taking the feed travels through successive runs in the chamber and discharges ready goods as opposed to the conventional circuits dropping tea from one tray to the next one. The process has the advantage of ensuring uniformly high standard tea at a consistently lower cost. The exhaust temperature on the CTD is around 110 Degree F, 20 Degree F to 30 Degree F lower than that of the conventional dryers. This is an indication of the efficiency of heat utilisation. The machine has a capacity of discharging over 200 kg. of CTC per hour at a 2.5 to 3 per cent moisture content in a single operation under normal weather conditions.

TEXTILE YARN AND CLOTH ON EXPORT STREAM

Textile yarn and thread and cotton manufactures (excluding yarn, thread and clothing) together earned foreign exchange to the tune of Rs. 1280.80 million during 1971-72. Of this, textile yarn and thread accounted for Rs. 280.36 million while cotton manufactures (excluding yarn, thread and clothing) netted Rs. 1000.43 million.

In the category of textile yarn and thread, cotton yarn and thread (Singles carded and combed and plied carded and combed) constituted the major items of export which earned foreign exchange as much as Rs. 105.09 million in 1971-72. The major importing countries were Czechoslovakia, U.K., Belgium, Sri Lanka, Arab Republic of Egypt, Yugoslavia, Burma, Nepal etc. Cotton yarn and thread (bleached, dyed, mercerised) earned Rs. 71.70 million. U.K., Burma, Sri Lanka, Ethiopia, Nigeria, Japan, Kenya, Singapore, Sudan, Arab Republic of Egypt, Afghanistan, Yugoslavia etc. were the main markets. Besides, yarn and thread of synthetic fibres fetched Rs. 1.98 million while yarn and thread of regenerated fibres earned Rs. 14.65 million. The export value of other varieties was Rs. 85.80.

In the category of cotton manufactures (excluding yarn, thread and clothing) mill-made piecegoods was the foremost area which earned foreign exchange valued at Rs. 674.68 million. USA, UK, USSR, Australia, France, Federal Republic of Germany, Canada, Nepal, Sudan etc. were the prominent destinations.

The made-up articles of cotton was another area of export which earned Rs. 186.74 million in foreign exchange. The important markets for this category included UK, USA, Nigeria, Muscat, Kenya, Sudan, Federal Republic of Germany, Denmark, Australia, Zambia, Sweden, USSR, Canada, New Zealand, Rumania etc. The export of handloom piecegoods was recorded at Rs. 99.54 million. U.K., Nigeria, USA, Sweden, France, Singapore, Federal Republic of Germany, Denmark, Nepal, Japan etc. were the prominent buying countries.

Besides these, other woven cotton fabrics (excluding narrow or special fabrics) earned Rs. 11.06 million while special fabrics of cotton and related products netted Rs 10.38 million. The export value of Tule lace embroidery ribbon trimmings and other small wares of cotton was of the order of Rs. 9.07 million while that of floor coverings, tapesteries etc. of cotton was Rs. 8.96 million.

Adding to the export effort of the cotton textile industry of the country, one of the firms engaged in the manufacture of textile yarn and cloth, M/s .Sri Krishnarajendra Mills Ltd., Mysore, exported its products to the tune of Rs. 9.25 million in 1971-72 as against Rs. 8.67 million worth exported in the previous year.

The firm's total production in 1971-72 comprised of yarn (5402 tonnes) and cloth (17.77 million metres). The installed capacity of the firm is 47884 ring spindles and 469 looms. In 1971-72, machinery worth about Rs. 1,15,000 was installed by the firm.

ELECTRICAL MACHINERY AND APPLIANCES IN OVERSEAS MARKETS

Exports of electrical machinery, apparatus and appliances netted foreign exchange to the tune of Rs. 186.74 million in 1971-72 as against Rs. 160.81 million in the preceding year. This represents an increase of about Rs. 26.00 million (about 15 per cent) over the export value in 1970-71.

This increase in 1971-72 was witnessed by nearly all the categories in this group. Equipment for distributing electricity recorded clear uptrend. The exports under this category fetched Rs. 54.02 million as compared to Rs. 35.65 million in 1970-71. U.S.S.R., New Zealand, Singapore, Iraq, Kuwait, Qatar, Iran, Dubai, A.R.E. etc. were the main markets. Electrical power machinery and switchgear was the next important area of uptrend in exports. The export value of this group was recorded at Rs. 47.48 million in 1971-72 as compared to Rs. 44.68 million. The prominent destinations for these items were ARE, Singapore, Federal Republic of Germany, Tanzania, Sudan, Nigeria, Sri Lanka, Malaysia, Thailand, Dubai, Indonesia, Australia, Burma etc. Telecommunication apparatus constituted one more area where exports increased to Rs. 29.92 million from Rs. 27.02 million in 1970-71. A.R.E., Netherlands, Sudan, U.K., Ethiopia, Kenya, Nigeria, Iran etc. were the prominent markets. Besides, exports of other electrical machinery and apparatus also increased marginally to Rs. 39.01 million from Rs. 37.33 million in 1970-71. Sudan, Nepal, U.S.S.R., Federal Republic of Germany, Japan, Yugoslavia, Kenya, Nepal, U.K., etc. were the important destinations.

Domestic Electrical equipment was the only category which recorded a slight decline. The export figures were Rs. 15.44 million in 1971-72 and Rs. 15.59 million in 1970-71. Iraq, Kuwait, Nigeria, Sudan, Yemen's Arab Republic etc. were the importing countries.

One of the manufacturers in the line, M/s. Hindustan Brown Boveri Limited, Dr. Annie Besant Road, Bombay-25 DD, exported electric motors, conductors, transformers, circuit breakers, tape changers, isolators, switch and control boards, electric furnaces and other products to the tune of Rs. 8.13 million in 1971-72.

The firm proposes to increase the manufacture of power line carrier current equipment at its Goregaon factory in view of the increased demand for its product. It has secured a new industrial license for additional capacity to manufacture electric arc furnaces of all types up to 56000 kw. per annum.

In the organised sector, the number of units engaged, the installed capacity and actual production of the various industries in 1971, respectively, were : 14, Rs. 67 million and Rs. 54.77 million in respect of furnaces; 20, 2.57 million HP and Rs. 2.37 million HP in the case of electric motors; 23, 6.27 million KVA and 8.69 KVA in the field of transformers; 11, 377764 numbers and 392,665 numbers in respect of motor starters; 25, 869,200 kms and 490,988 kms in case of cables and wires (AIR and PVC cables). Besides, the number of units engaged and actual production in the organised sector of switchgear and control gear industry was 39 and Rs. 219.18 million respectively.

EXPORT PERFORMANCE AND POTENTIAL

REVIEW OF INDIA'S TRADE WITH JAPAN

A study of trade pattern between India and Japan in recent years indicates certain interesting developments. Till 1970-71 there had been a continuous increase in India's exports to that country—Rs. 1074.40 million in 1966-67, Rs. 1359.20 million in 1967-68, Rs. 1583.30 million in 1968-69, Rs. 1793.60 million in 1969-70 and Rs. 2034.10 million in 1970-71. But during 1971-72 exports declined to Rs. 1822.70 million. The balance of trade between the two countries which was unfavourable to India till 1965-66 (—Rs. 80.30 million), was converted into surplus during 1966-67 (+Rs. 0.40 million). The trend has since been maintained—plus Rs. 274.90 million in 1967-68, plus Rs. 429.80 million in 1968-69, plus Rs. 1125.40 million in 1969-70, and plus Rs. 1201.10 million in 1970-71. There was, however, an abrupt reduction in the favourable trade balance for India during 1971-72 (plus Rs. 207.0 million) due to decline in exports from India coupled with nearly 100 per cent increase in imports at Rs. 1615.70 million.

Another interesting feature has been the steady increase in the relative proportion of non-traditional products in India's exports to Japan.

The decline in India's exports to Japan during 1971-72 was mainly due to the reduced offtake of iron and manganese ores, ferrous scrap and pig iron, owing to the recession in the Japanese steel industry. There has also been a slight decline in exports of traditional agricultural products like spices, oilcakes and palm fibre. On the other hand, there were substantial increases in exports of marine products, cashew kernels, tea, tobacco, rose wood, raw cotton, chemical elements and compounds, jute manufactures, handloom and mill-made cotton fibres, pearls and precious stones and clothing.

Japan ranks as the third largest trading partner of India, accounting for 11.6 per cent of India's exports and 8.9 per cent of India's imports. In fact, Japan occupies third position, next only to U.S.A. and U.S.S.R. in India's export trade and next to U.S.A. and U.K. in her import trade.

The upsurge of the Japanese economy has brought about a shift from labour intensive to capital intensive industries. It is in this context that the Indian industry and trade can offer a wide variety of labour intensive manufactures and semi-manufactures to Japan in an increasing way in the years to come. The promising lines of export from India in the engineering sector relate to automobile parts and ancillaries, bicycles and components, steel forgings and castings, handtools and high speed cutting tools, etc. As India is more advanced among other developing countries in industrial progress it should be possible for her to take full advantage of the tariff preference granted by Japan under the Generalised Scheme of Preferences for manufactures and semi-manufactures.

INDO-BANGLADESH TRADE REVIEW

The Indo-Bangladesh Trade Agreement which was concluded in March, 1972 provides for border trade to facilitate trade in articles of daily use; Limited Payments Arrangement for balanced trade in commodities of special interest to the extent of Rs. 250 million each way; and trade outside the Limited Payment Arrangement in terms of the normal global import and export policies payable in convertible currency.

The border trade arrangement was to be reviewed after a period of 6 months. During the review talks in early October, Bangladesh asked for suspension of the arrangement until control of the border could be formally established. The Indian side expressed that the border trade was essential to the economic well-being of a large number of people living on either side of the border. However, in deference to the wishes of the Bangladesh Government, the Indian side suggested that early discussions be held between the representatives of the two Governments to deal with difficulties likely to be experienced by people in remote areas on either side as a result of suspension of the border trade.

Under the Limited Payment Arrangement, it has been learnt from the State Bank of India, that actual bookings as on September 1972 were Rs. 109 million for exports from India and Rs. 48 million for imports from Bangladesh. Exports from India to Bangladesh have been comparatively larger than the reverse flows into India, mainly due to the desire of the Bangladesh Government to give priority in their import programme to the procurement of essential goods such as coal, cement etc. Movement of goods from Bangladesh to India has been slow due to lack of transport facilities and other institutional difficulties. Lack of availability of supplies is another factor for the low level of imports from that country into India. For instance, supplies of furnace oil from Bangladesh would not be more than 108,000 tonnes as against 200,000 tonnes for which contracts were concluded. Similarly against the provision of Rs. 2.5 million for molasses, contracts were concluded only for Rs. 1.5 million. Again in view of the difficulties in organising facilities for packagings, preservation and transport, only Rs. 30 to 40 million worth of fish could be exported by them to India before March 1973 as against Rs. 90 million worth of fish provided in the Agreement. In regard to raw jute, contracts were already concluded for the import of 140,000 maunds. Out of this only 6,5000 maunds was supplied upto the end of September, 1972.

At the request of Bangladesh Government, mini-buses, tooth brushes, shaving brushes, conch shells, tarpaulins etc. were included among the articles to be imported from India. Under the Limited Payment Arrangement, tanning extracts, turtles and tortoises, straw mats and brooms, handicrafts, ceramics etc. were included for export from Bangladesh.

Assuming that the transport system in Bangladesh will respond adequately and that the country would be able to surmount institutional difficulties in trading and marketing, it is expected that the volume of trade might come upto about Rs. 400 million as against the provision of Rs. 500 million in the trade agreement for the current trade year ending March, 1973.

As for the trade outside Limited Payment Arrangement, the practice with the Bangladesh Government has been to invite international tenders for the supply of goods required from overseas by the Government Departments and the State Trading Agencies. Indian entrepreneurs have already proved successful in winning such tenders for the supply of cycles, commercial auto-rickshaws, automobile spares, pumping sets and textiles.

INDIAN SAREES POPULAR ABROAD

India-made sarees of both handloom and mill-made cotton origin, silk sarees, rayon and nylon sarees as well as those made of man-made fibres embroidered with Zari are catching up among feminine fashion circles abroad.

Cotton sarees both handloom and mill-made earned foreign exchange worth Rs. 6.85 million in 1971-72. The single important variety was the hand-printed saree-group whose export value totalled Rs. 2.4 million in the year, major markets being Mauritius, Saudi Arabia, Singapore, Malaysia and Sudan.

Silk sarees were exported in the same year to the tune of Rs. 8.44 million. Of this, zari bordered silk sarees over 90 per cent handloom silk was supplied abroad to the level of Rs. 2.7 million. Singapore was the leading market at an intake value of over Rs. 1 million. Kenya, U.K., Tanzania were the other importers. Silk sarees over 90 per cent handloom silk fetched Rs. 4.62 million in 1971-72. German Federal Republic absorbed Rs. 0.8 million and Singapore Rs. 0.71 million worth. The other varieties exported in this category were zari bordered silk sarees of 40 to 90 per cent handloom silk, handloom silk sarees with real zari as well as imitation zari.

Nylon Sarees were equally popular having earned foreign exchange of Rs. 1.57 million. Fiji Islands, Singapore and the U.K. were the principal importers.

Handloom sarees of man-made fibres embroidered with zari were mainly purchased by Uganda and Kenya. They accounted for over half of the total export earnings in this variety at Rs. 0.54 million.

Among other handloom saree varieties eagerly sought by the world markets particularly in the Asian region were rayon sarees and terrylene/dacron sarees. Sudan, Fiji, and Kenya are the most important markets for these varieties.

BOOST IN TOBACCO EXPORT

Export from India of unmanufactured tobacco in the period of six months (April-September 1972) of 1972-73 has recorded a sharp increase of Rs. 80.80 million over the export value in the corresponding period of the previous year. The export value during the period under review of 1972-73 was recorded as much as Rs. 391.31 million as against Rs. 310.52 million netted during the comparable period of 1971-72. In terms of quantity too, the increase was evident. As against 59,881 tonnes exported in the period of six months of 1972-73 (April-September 72), the quantum of unmanufactured tobacco exported in the same period of 1971-72 was 40,856 tonnes. Quantitatively the improvement was of the order of 10,025 tonnes.

Regionwise, the intake by the West European region was the largest of all the regions at Rs. 185.36 million (22183 tonnes) in the period of 6 months of 1972-73 (April - September 1972) against Rs. 118.18 million (15,047 tonnes) worth imported by the region in the comparable period of the preceding year. USSR was the major buyer accounting for Rs. 163.79 million (18,592 tonnes) followed by Czechoslovakia at Rs. 14.80 million (1596 tonnes), Bulgaria at Rs. 6.36 million (1725 tonnes) and Hungary Rs. 0.42 million (270 tonnes).

The intake value of the U.K. region was recorded as much as Rs. 113.81 million (12,654 tonnes). This region was the second largest absorbing region next to Western region.

South and South East Asia was the next important region whose total intake was valued at Rs. 67.45 million (9813 tonnes) as against Rs. 43.15 million (5429 tonnes). Japan occupied the position as the foremost importing country, sharing worth Rs. 67.45 million (4196 tonnes) of the total export value of the region. Bangladesh emerged as the second largest importing country whose total intake was valued at Rs. 22.05 million (5207 tonnes), followed by Singapore at Rs. 1.96 million (231 tonnes), Indonesia at Rs. 0.55 million (150 tonnes) and others at Rs. 0.11 million (29 tonnes).

With Irish Republic as a principal buyer accounting for an intake worth Rs. 9.37 million (793 tonnes), the West European region's share in the overall export was of the order of Rs. 14.79 million (2719 tonnes) as against Rs. 11.27 million (1731 tonnes) in the corresponding period of the preceding year. Netherlands was the second important destination next to Irish Republic absorbing worth Rs. 2.23 million (669 tonnes). The import values of other prominent markets were : Belgium Rs. 1.96 million (288 tonnes), France Rs. 0.68 million (874 tonnes and others Rs. 0.55 million (95 tonnes).

The African and Middle East regions were the only areas registering decline in their imports during the period under review in 1972-73 compared to their import values in the same period of the previous year. The intake value of African region was recorded at Rs. 6.45 million as against Rs. 8.77 million. Somalia emerged as the number one importing country absorbing worth Rs. 2.79 million followed by Libya Rs. 2.74 million, Congo Rs. 0.33 million, Canary Islands Rs. 0.23 million and others Rs. 0.37 million. The import value of the Middle East region declined marginally to Rs. 3.10 million (1035 tonnes) in 1972-73 (April-September, 72) from Rs. 3.31 million (1196 tonnes) in the comparable period of 1971-72.

ALL TIME HIGH IN HANDICRAFT EXPORTS

India's export earnings of handicraft products reached an all-time high record of Rs. 853.20 million during 1971. Export value during 1971 was Rs. 801.60 million, Rs. 840 million in 1969, Rs. 680.10 million in 1968 and Rs. 536.70 million in 1967. In terms of Dollar, the export earning improved to 113.73 million as compared to 106.85 million in 1970 and 111.96 million, 91.06 million, 71.54 million in the three previous years, respectively.

The items that contributed towards the rise in the exports during 1971 were precious, semi precious and synthetic stones, woollen carpets, metal-wares, wodenwares and embroidered goods.

The exports of precious, semi-precious and synthetic stones increased by over Rs. 84 million from Rs. 393.64 million in 1970 to Rs. 477.68 million in 1971. Silver jewelley went up by about 26 per cent to Rs. 2.66 million in 1971 from Rs. 2.11 million in 1970. The increase in the export of woollen carpets, rugs and druggets including namdahs was also significant as the exports increased by Rs. 16.39 million to Rs. 128.52 million in 1971. Art metal-wares also improved export performance by 5.3 per cent from Rs. 63.66 million in 1970 to Rs. 67 million in the following year. The offtake of woodenwares increased to Rs. 30 million from Rs. 28.7 million in 1970.

The highest percentage increase in exports in 1971 was, however, recorded by embroidered goods. The increase was of the order of over 55 per cent from Rs. 7 million and odd in 1970 to nearly Rs. 11 million in 1970.

The value of exports of miscellaneous handicrafts increased from Rs. 45 million in 1970 to Rs. 51.68 million in 1971. Among the miscellaneous handicrafts, notable increase was recorded by leather goods, agarbattis, articles of tortoise shell, mother of pearl etc; other works of art; articles of wicker work, bamboo etc. and dolls and toys.

Export decline was, however, witnessed in certain items such as gold and jewellery, and hand printed textiles, immitation jewellery, zari and ivory products. In the miscellaneous handicrafts group, the export performance was somewhat uneven in respect of musical items, stone work, alabaster etc; articles of fur, feather and human hair, horn articles and papiermache articles.

INTERNATIONAL SYMBOL FOR INDIAN WOOLLENS

For the first time in India, four leading knitwear units in Ludhiana (Punjab) engaged in the production and export of woollen goods have been granted licences for the use of woolmark—the international symbol for quality pure new wool products. This was recently disclosed by the International Wool Secretariat (IWS) and the Regional Manager, Australian Wool Commission in India.

The names of these firms are: M/s. York Hosiery Mills, M/s. Sind Knitwears, M/s. Pubjab Kesari Hosiery Factory and M/s. Rai Bahadur Knitting Works of Ludhiana. All the woollen goods manufactured in India bearing the woolmark label will be considered on par with the quality products manufactured in the U.K., West Germany etc.

The award of the woolmark was due to the joint efforts of the knitters in establishing adequate inplant testing and quality control arrangements and the introduction of efficient shrink resistant treatment at M/s. Woolcombers of India Limited, Calcutta, and Dhroowa Woollen Mills, Bombay. Besides the four firms licensed, there are several other firms on the list and as soon as their quality control arrangements get completed as per the woolmark requirements, licences would be issued to them too.

With an aim to improve the quality of India's woollen products for export, the I.W.S. has successfully introduced unique shrink resist process which was widely used around the world. I.W.S. also provides to the licensed units Fashion Colour and Designing Forecasts eighteen months in advance to keep them abreast with the changing fashions abroad.

INCREASE IN EXPORT OF LAC

Export earning through overseas supplies of various kinds of lac from India increased by Rs. 16 million to Rs. 66 million in 1971-72 from Rs. 50million in 1970-71.

The increase in export in 1971-72 was recorded by all the major varieties of which machine made shellac contributed the major share. The increase in the export value of this variety alone was about Rs. 10 million from Rs. 26.69 million in 1970-71 to Rs. 35.33

million in 1971-72. Seed lac was the other variety leading to the increase, from Rs. 7 million to Rs. 12.20 million in 1971-72. Shellac (hand-made) and Button and Garnet lac also witnessed marginal improvement in export value during the year. While Shellac (hand-made) fetched foreign exchange equivalent to Rs. 14.37 million in 1971-72 as against Rs. 12.14 million in the previous year; Button and Garnet lac accounted for Rs. 3.90 million and Rs. 3.36 million, respectively in the two years. Other lacs, however, registered a marginal decline from Rs. 0.77 million to Rs. 0.12 million in 1971-72.

Lac from India is exported to nearly 70 countries of the world. During 1971-72, the major buyer for mill-made shellac was U.K. with an intake worth Rs. 4.45 million, followed by Brazil at Rs. 4 million, U.S.A. Rs. 3.75 million, U.S.S.R. Rs. 2.60 million and Singapore Rs. 2 million. The other major purchasers were Spain, Italy, Australia, Indonesia with an intake varying from Rs. 1 million to nearly Rs. 1.70 million. U.S.A. and U.K. were the chief importers of hand-made shellac during the year. They bought worth Rs. 2.50 million and Rs. 2.30 million, respectively. The other leading buyers for this variety were Argentina, Mexico and Federal Republic of Germany.

The major destinations for seed lac were USA, Federal Republic of Germany and U.K. who imported this variety at Rs. 6 million, Rs. 3.60 million and Rs. 1.90 million respectively. Canada and U.S.S.R. were the other important buyers. U.S.A. and U.K. with an intake worth Rs. 1.20 million and Rs. 1.81 million were again the major importing countries for button and garnet lac. Australia, Brazil, Finland, France and Denmark were the other markets.

India is the leading lac producer in the world having a share of more than 60 per cent of the world trade. Of the lac producing states in India, Bihar contributes the major share with 51 per cent of the total output, followed by Madhya Pradesh 23 per cent, West Bengal 14 per cent, Maharashtra 5 per cent, U.P. 4 per cent and other states 3 per cent.

In 1969-70, of the world's production of sticklac of 29,742 tonnes, India's share amounted to 25,742. This proportion in 1968-69 was 49,597 tonnes and 29,598 tonnes; in 1967-68, 49,979 tonnes and 38,779 tonnes. India's production in 1970-71 was of the order of 24,560 tonnes.

As the secretion of certain species of insects, encouraged to grow on specific 'host trees', lac is collected as encrustation on the twigs. The stick lac is obtained by scrapping. The stick lac contains in addition to lac, several impurities which include woody matter, lac dye and dead insects. By crushing, washing, drying and screening, sticklac is processed to produce seed lac. Seedlac is further processed, both by hand and machine, to yield shellac.

Known for its utility from time immemorial, shellac has today found many uses in different industries. For wood finish, it is unrivalled. Bleached shellac produces a transparent finishing to bring the natural beauty of light coloured woods. It is used for floor polish as well as shoe polish. Various types of inks, specially water proof inks and flexographic inks contain shellac. It is valued as sealer and under coat. It is also used by the tanners to obtain a flexible water proofing and glossy leather finish. It is also used to toughen rubber heels and soles, varnish metal foils as also for floor tiles and moulded rubber articles.

In grinding wheels, shellac serves as a bond for abrasive/grains such as aluminium oxide, and silicon carbide. Shellac bonded grinding wheels have good elasticity and are specially useful for precision work. Several well known varieties of cement are shellac based. It is also used as a plate sealer for rivetted joints and for protecting nuts and bolts against loosening due to vibration. The use of shellac in electrical industry, gramaphone records and as a protective for negatives and sound track of talkie films is, however, on decline with the emergence of synthetic substitutes.

Shellac is also used for many exquisite Indian handicrafts. Lac bangles, jewellery such as necklaces, bracelets, ear rings, ear tops etc. produced in varied colours and choicest varieties, are popular even today with connoisseurs of fashion in Europe and Far Eastern countries.

CEILING FOR ROSE-WOOD EXPORT INCREASED

Consequent on the exhaustion of the annual export quota of rose-wood for the year 1972-73, in September last, the Government of India have decided to increase the ceiling for its export by 6,000 cubic tonnes.

For several years, the annual quota for rose-wood exports was fixed at 12,500 cubic tonnes. In 1971-72, the annual quota was exhausted much earlier than the close of the licensing year and a further release of 2,000 cubic tonnes was made on the condition that the additional quota would be adjusted against the quota for 1972-73. Thus the annual quota for 1972-73 was earlier fixed at only 10,500 cubic tonnes. But with the increase in the ceiling now by another 6,000 cubic tonnes, the total quota for 1972-73 would work out to 16,500 cubic tonnes.

Rose-wood is mainly grown in the three Southern States of Kerala, Mysore and Tamil Nadu. As this is a slow growing species, its export from the country is being regulated by way of fixing a year's quota.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

UPTREND IN INDUSTRIAL GROWTH

India's industrial production, in the first quarter of 1972 marked an increase of nearly 7 per cent as against only 2 per cent during the corresponding period of the previous year. According to this trend, it is evident that after a period of slow growth, industrial production of the country is going up.

In the first two months of the year, April and May, the production recorded was higher by 7.9 per cent and 10.6 per cent respectively.

An increase of 8 to 10 per cent was contemplated during the Fourth Five Year Plan. Against this, the rate of growth in industrial production was achieved at 7.1 per cent in 1969 but it declined to 4.8 per cent in 1970 and further reduced to 3 per cent in 1971.

The main reasons for the slower rate of growth, according to the mid-term appraisal of the Fourth Plan are inadequate supplies of inputs, sluggish demand and shortages of capacities. Besides, shortages in production of various essential commodities hampered production of engineering industries, cotton textiles and sugar. Inadequate transport and power supply too contributed to this slow rate of growth.

With a view to accelerate production, many positive steps were undertaken. A steel bank was set up to procure steel in advance of requirements to meet essential needs.

To secure fuller utilisation of installed capacity, Government has announced relaxation in licensing policy in respect of 54 specified industries. These include agricultural tractors and machinery, fertilizers, basic metals, iron and steel, machine tools, cement, pulp, paper and newsprints, chemicals, tyres and tubes, drugs, jute textiles, sugar and cotton textiles.

Under this policy, additional production is allowed in the specified industries subject to certain conditions. The relaxations, however, do not apply to the production of goods reserved exclusively for the small scale sector. Nor do they apply automatically to the larger houses and foreign majority companies. Such companies have to apply to the Government for being allowed an increase in production.

A Task Force has been set up to scrutinise applications from larger houses and foreign majority companies. The Task Force received 212 applications upto October 18, 1972, and considered 170 applications for enhancement of capacity. Out of these, 110 cases were finally decided and enhancement was approved in 37 cases. Eleven more industries have recently been identified to which relaxations will be applicable bringing the total of such industries to 65. The new industries include road rollers. hosiery needles, steel wires, polyethylene, diesel locomotives, industrial alcohol and synthetic detergents.

The liberalisation of industrial licensing and stepping up the pace of licensing is also intended to enhance production though the impact would be felt only after some time.

TOWARDS DAIRY DEVELOPMENT

India's total milk production is estimated around 25 million tonnes (1971). This was about 6 per cent of the world total of 400 million tonnes. Merely two-fifths of the milk production in the country emerges from cows and the rest from buffaloes. With a cattle population of 176 million and 53 million buffalo heads, India accounts for about one-fifth of cows and one half of buffaloes in the world.

Of the total milk production, about 40 per cent is utilised for consumption in liquid form and the rest for prepartion of milk products. Per capita milk cosumption in India is about 120 grams compared to 300 grams of the world.

Extensive efforts to improve milk production in particular and dairy development in general are being organised by Government of India. In the course of the Five Year plans, several dairy product factories have been set up throughout the country, manufacturing capacity for diary equipment has been strenghtened and advance dairy research programmes have been successfully undertaken. Now that the pattern of dairy production has somewhat brightened, endeavours are now being organised for quicker distribution on commercial scale of the various dairy products alike in urban and rural areas.

Over the plan years a surprising range of dairy equipment has come out to be manufactured. This includes pasteurisers, boilers, automatic bottling plants, spray drivers, condensed milk plants, bulk milk coolers, stainless steel butter churns, refrigerated tanks, large sized road and rail tankers and storage tanks. The equipment that is indigenously fabricated is at par with the standards set by International Dairy Federation.

Notwithstanding the all round progress made by the Dairy Industry in India, the pressure of increased population and the consequent increase in demand has necessitated import of certain dairy products particularly milk and cream. Doubtless the import bill on this count has been sizeably falling. Yet in 1971-72 nearly Rs. 190 million worth of milk and cream had to be imported and additionally Rs. 18 million worth of butter was also purchased from abroad. Hopefully, consistent programmes for meeting domestic production in line with the population rises as also the plans for strengthening the infra-structure, the import bill on this account will be gradually reduced.

Interestingly, some quantities of butter, milk and cream, cheese and curd are on the export stream. In 1971-72, Rs. 17 million worth of butter was supplied mainly to Nepal. Malaysia, Singapore and U.K. were the other importers. Nepal again was an important purchaser of milk and cream, while German Federal Republic purchased a small quantity of cheese and curd.

INDIA IS LEADING REGIONAL DONOR

India which is the leading regional donor under the Colombo Plan, provided 322 training and student places in 1971—69 per cent of the regional total of 469 for the year. India also provided 12 technical experts to the region in 1971.

India is the third largest recipient of trainee and student awards (845). Vietnam (1870), Thailand (1276) and Indonesia (712) were the other large recipients under the Colombo Plan Technical Co-operation Scheme in which the major doners are Australia, Britain, Canada, Japan New Zealand and the United States.

India received 109 experts in 1971, chiefly from the United States (52), Britain (34) and Japan (19).

These facts are revealed in the 1971 Report of the Colombo Plan Council for Technical Co-operation in South and South-East Asia.

Since its inception in 1950-51, the Colombo Plan Technical Co-operation programme has provided 81,028 training and student awards for men and women from the region to acquire specialised training in the donor countries. This has been supplemented with the services of 15,278 experts, consultants and advisers in key areas of activity.

The cumulative expenditure on technical assistance since the inception of the Plan was spent in the proportion of 18 per cent on trainess and students, 51 per cent experts and 31 per cent on technical equipment.

INDIA'S THIRD FRIGATE LAUNCHED

India's third frigate INS 'Udaigiri' being built for Indian Navy was launched at Mazagaon Docks, Bombay, recently.

The order for building this frigate was placed by the Government of India. INS Nilgiri is expected to be delivered to the Indian Navy in 1975. The Union Government is planning to place order on Mazagaon Docks for building a few more frigates of the leander class in addition to six already being built by the Docks for the Indian Navy.

The Mazagaon Docks has already constructed the first leander class frigate - 'I.N.S. Nilgiri' and the same was delivered to Indian Navy. The second frigata-I.N.S. Himgiri, launched in 1971 is under construction and would be delivered to the Indian Navy in 1974.

The I.N.S. Nilgiri frigate has been built with high quality of workmanship. The Mazagaon Docks is now capable of constucting the latest types of warships including submarines. At present the frigates are being built wholly by the Indian personnel.

NETWORK OF CYCLONE WARNING STATIONS

By the end of the fourth five year plan, India will have a network of 8 cyclone warning radar stations along its coast, according to the National Observatories. It would provide one of the best radar coverage in the world.

India has already radar stations installed at Visakhapatnam. Three more stations installed at Madras, Calcutta and Paradip at the end of 1972-73 and later on, five others would be located at Karikal, Masulipatnam, Bombay and Goa.

PROGRESS IN ROAD DEVELOPMENT

India's total road kilometerage has recorded about 222 per cent increase since Independence. The country's total kilometerage today is of the order of 12,50,000 kilometerage as against only 3,88,226 kilometerage in 1947, registering a massive increase of 862,226 kilometerage.

The length of surfaced roads increased from 145,855 kilometres to 430,000 kilometres during this period. The community development blocks, Forest Departments and the Border Road Development Councils have contributed heavily to the construction of road in the country. These agencies have constructed 500,000 kilometres of roads. Besides, the length of the National highways too went up from 21,440 kilometres to 28,819 kilometres.

As against the total investment on roads of about Rs. 400 million during the pre-First Five Year Plan period, an amount of Rs. 8710 million was allocated for development of roads for the Fourth Five Year Plan. This amount was almost twice as much as the outlay under the Central and State sectors in the Third Plan. With the aim to develop the roads in rural areas of the country, an amount of Rs. 2500 million was earmarked out of the total allotment for the fourth five year plan.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

PROCESS FOR PEX AND PAX

A process for the manufacture of Potassium Ethyl Xanthate (PEX) and Potassium Amyl Xanthate (PAX) has been developed by the National Chemical Laboratory (NCL), Poona.

Potassium Ethyl Xanthate (PEX) is used as a froth flotation agent in mineral industries while Potassium Amyl Xanthate (PAX) can be used for the similar purpose. The present demand for PAX is about 30 tonnes per annum and the projected annual requirement of the National Mineral Development Corporation (NMDC) is about 300 tonnes. The requirement of PEX by the Hindustan Zinc Limited, Udaipur, Rajasthan is about 15 tonnes per annum. At present, the demand is met through imports and available indigenous production.

The process developed by the NCL for making PEX consists of mixing ethyl alcohol with the potassium hydroxide solution and carbon disulphide. The Xanthate is dried. Similarly PAX can also be prepared by using n-anyl alcohol instead of ethyl alcohol. All the raw materials required for manufacture of PEX are available indigenously.

A suitable kettle with stirring arrangement, a flame proof motor and vacuum drier are the main items of plant and equipment and all of these are available indigenously. No separate plant is required for manufacture of PAX and technology for both the processes is similar.

NEW WHEAT VARIETY DEVELOPED

A new variety of wheat called WG A377 has been recently developed by the plant breeding department of the Punjab Agricultural University.

The new variety has been approved for release by the University. The developed variety gives higher yield than that of popularly sown Kalyan Sona. WG A377 out-yielded the Kalyan Sona with a margin of 8.4 per cent under high fertility irrigated conditions, 11.8 per cent for low fertility irrigated soils, 16.17 per cent for high fertility (late sown conditions) and 29.26 per cent under low fertility (rainfed conditions).

SILICON TRANSISTORS AND DIODES DEVELOPED

A major breakthrough in the development of core technology of silicon transistors and diodes has been achieved by the Central Electronics Engineering Research Institute (CEERI), Pilani, Rajasthan.

The know-how for the development of silicon transistor and diodes has been evolved indigenously. The know-how thus developed will not only help in establishing transistor industries but will also open up new avenues for further developments in the field of electronics. Based on this know-how, the commercial production is expected to be of the order of Rs. 60 million annually within a couple of years and the annual foreign exchange saving would be of about Rs. 30 million.

The transistors and diodes are basic components in any electronic equipment or system and as such demand for these items is growing rapidly. It is estimated that the demand for these items by the end of 1974 would be around 120 million numbers per year. The present annual production of these devices is of the order of 40 million numbers only.

COMPRESSION TESTING EQUIPMENT DEVELOPED

A prototype of a simple equipment for the purpose of compression testing has been developed for the first time by the Indian Institute of Packaging (IIP), 254-C, Dr. A. B. Road, Prabhadevi, Bombay-25.

The developed instrument can be normally operated and can provide help in measuring compression strength of small and medium sized duplex board cartans and similar containers. It has a range of 0 to 50 kgs. Packages up to 11 inches height can be tested by this compression tester which is also used for comparative evaluation of stiffness and stackability of small cartans. The IIP is carrying out research and development with a view to assist industries in their packaging needs.

MACHINES FOR SPECIAL PAPERS

Production of machines for manufacture of special papers like tissues, manifolds, air mails, and bonds has lately been started by the Utkal Machinery (UT-MAL) of Kansbahal in Orissa. The fine paper machine has a capacity to produce 14 to 40 tonnes of paper every day depending on the particular special variety under production.

UT–MAL, the manufacture of these machines, are known for production of the full range of equipment for the paper industry.

NEW PROCESS FOR QUINOLINE

A new process for the manufacture of 8-hydroxy quinoline starting from chloro-benzene has recently been developed by the Regional Research Laboratory (RRL), Jorhat.

During 1970-71, the pharmaceutical industry in the country imported Rs. 1.62 million worth of hydroxy quinoline. The process developed by RRL will thus lead to saving in expenditure on import of this important pharmaceutical intermediate used in the manufacture of some anti-dysentery drugs.

DIRECTION OF INDIA'S IMPORT TRADE

(Rs. in million)

Countries	**1970-71**	**1971-72**
U. S. A.	4529.5	4165.2
U. K.	1267.6	2168.6
Japan	834.3	1615.6
Iran	916.3	1263.6
Federal Republic of Germany	1074.7	1239.0
Canada	1172.3	1128.1
U. S. S. R.	1061.3	816.5
Poland	280.3	495.7
Saudi Arabia	241.7	383.3
France	213.3	361.0
Belgium	115.1	343.1
Arab Republic of Egypt.	398.4	332.2
Netherlands	190.9	305.9
Australia	365.9	293.9
Sudan	209.4	253.2
Italy	288.6	244.1
Zambia	272.5	209.4
German Democratic Republic	186.3	202.4
Tanzania	176.4	184.6
Kenya	96.9	176.9
Bulgaria	154.8	138.1
Rumania	165.8	133.0
Kuwait	56.2	130.4
Sweden	98.0	126.5
Nepal	94.4	102.7
Czechoslovakia	202.0	101.7
Hungary	149.5	86.8
Switzerland	115.7	78.3
Democratic Republic of Congo	198.1	49.4
Yugoslavia	76.5	43.3
Total including other Countries	**16342.0**	**18120.0**

Source : Department of Commercial Intelligence and Statistics, Calcutta.

"ASIA 72"

The Third International Trade Fair ("ASIA 72") has just been inaugurated in New Delhi. It will be on for a month and a half and will close on November 17, 1972.

The Fair is being held under the auspices of the United Nations Economic Commission for Asia and Far East (ECAFE). It is, in fact, an ECAFE institution held every three years in one of the Asian capitals. The first Asian International Trade Fair (1966) was held at Bangkok (Thailand) while Tehran (Iran) hosted the second one in 1969. The Fair is called "ASIAN" in the sense that the venue of the event is confined to countries on the Asian Continent. It is 'International' because participation is also open to countries outside the ECAFE region. The list of participating countries in the forthcoming Fair thus includes Afghanistan, Bangladesh, Bhutan, Fiji, Burma, Indonesia, Iraq, Japan, Republic of Korea. Kuwait, Malaysia, Outer Mongolia, Nepal, the Philippines, Sri Lanka, Sultanate of Oman, Thailand and Turkey in Asia; Algeria, Kenya, Libya, Mauritius, Sudan, Tanzania and Zambia in Africa and Austria, Belgium, Bulgaria, Cyprus, Czechoslovakia, France, West Germany, German Democratic Republic, Hungary, Poland, Rumania, Spain, Sweden, U.S.S.R., and Yugoslavia in Europe. Australia and Canada will also be participating–for the first time in a fair in India. Similarly the Latin American countries of Brazil, Chile and Peru who are also participating in the event are taking part in an Asian Trade Fair for the first time.

With "Peace and Progress for Asia through Economic Co-operation", as its theme, the Fair has adopted for its symbol a stylised representation of the hand of Buddha as a sign of freedom from fear and as a mark of benediction to all mankind. The idea is to have an international rather than a national symbol as the insignia for the event.

The Fair aims at stimulating trade between various countries on the Asian continent and also between these countries and the rest of the world. In this context concrete measures have been devised to further cantacts at several levels between buyers and sellers. These include duty free imports of goods for display. The participants are being allowed to sell these goods against their Fair quota, at the rate of 50 US dollars per sq. metre of booked space subject, however, to a specified limit on such sales. The Indian Railways have offered free return freight facilities. The Fair organisation has also offered to undertake local hospitality to teams of foreign buyers and purchase missions. The fruits of India's strides on the agricultural front and in the small scale industries sector have been offered to the foreign participants. The Fair organisation is requesting the participating countries to nominate 10 persons each for training at the expense of the host country in 'growmore-food' techniques and in the development of small-scale industries.

Besides, the UNIDO will be operating Industrial Promotion Services and is going to organise two industry days for 100 businessmen each. The ECAFE will run a Trade Promotion Centre (TPC) to stimulate trade contacts between participating countries, in addition to organising seminars and discussions on trade development. Arrangements are underway for holding an international conference on transfer of technology.

For the first time the total available area on the traditional exhibition grounds in New Delhi is being utilised. The total area of the Fair complex is estimated at 120 acres excluding additional 20 acres of parking area. This is dividend into a 40-acre Permanent Complex and an 80-acre non-Permanent Complex. The 80-acre non-Permanent Complex is comprised of International Sector, Private Sector, Public Sector, States Sector, Central Ministries, four greens and Huge-water-body.

The permanent complex providing 500,000 sq. ft. of covered exhibition space is built to international specifications to secure for India entry into the International Union of Trade Fairs, Paris. So far only Japan has such a complex in Tokyo. Once India becomes a member of IUTF, the country will be able to organise every year six commodity fairs and one general fair which means an international fair every alternate month.

The crowning structure of the Permanent Complex, indeed of the entire Fair grounds, is the 107-ft. Hall of Nations—the biggest spaceframe of its kind in RCC. It is 256′ x 256′ at base with a covered exhibition space on ground and 'L' shaped mezzanine of about 100,000 sq. ft. It is a pillarless constuction which involved the use of computer to solve many difficult equations. It

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is intended for display of the products of more than 20 participating nations.

In immediate neighbourhood to Hall of Nations are the four units, spaceframes of similar construction and design, of the Hall of Industries. While three units house sophisticated Indian industries, the fourth is devoted to atomic energy and space technology in India testifying to the country's entry into the nuclear and space era over a period of twentyfive years since independence.

In close vicinity is an octagon joined by two rectangles. This is the Textile Pavilion. Textiles, being India's second biggest foreign exchange earner and the largest organised industry with about a million in employment, is the 'theme product' of ASIA 72. Besides display of Indian textiles and textile machinery, fashion parades will also be arranged in this pavilion.

The other elements of the Permanent Complex include the Nehru Pavilion, Rural India Complex, Open-Air Theatre, Cinema cum Theatre, Theme Pavilion, and International Restaurant.

The Nehru Pavilion will house permanently 'Charles Eames Exhibition on Nehru and New India', supplemented with sound and picture compilations on the life of Jawaharlal Nehru while the Rural India Complex offers an insight into the make up of the Indian nation.

The 2,500 persons capacity open air theater hangs out over the rim of a large water body with 28,000 gallons of water. It is intended to provide the main venue for cultural interaction during the Fair. The participating countries will use it to celebrate their national days. The 425 capacity cinema cum theatre has a cinema on the ground level while the theatre at the roof level is intended to be an open air one.

The six-million-rupee Theme Pavilion is envisaged to present audio-visual projection of India's past, present and future. It provides a 3-cameral functional structure, preceded by five rows of five men-size plastic domes each, intended for display of blown ups from different walks of life in India. It will be a 30-minute programme guided by two computers and presented with the help of 64 slide projectors and two cinemascope projectors. It is for the first time that the multiple projection technique has been adopted in India.

The 1,000 persons capacity International Restaurant, with two of the terraces hanging out over a pond, will be utilised for hosting business parties and receptions. In addition, there are a number of regional restaurants and about 100 kiosks to take care of the gastronomic needs of the visitors.

The 45 days Fair is expected to be seen by about 7 million people at an average of 150,000 visitors per day. Of the estimated cost of about Rs. 60 million, nearly half will be recovered through space rental and admission charges. The foreign exchange earning, direct and indirect, from the Fair may add up to about Rs. 80 million. In addition, the country will earn additional foreign exchange through bilateral and multi-lateral business deals during the Fair. ☐

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CHEMICAL INDUSTRY AND EXPORT TRADE

Among the non-traditional products that have contributed to India's export growth in recent years, chemicals and allied items occupy an important position. In 1971-72, their export value was of the order of Rs. 321 million. Of this, the share of chemical elements and compounds was Rs. 72.32 million; dyeing, tanning and colouring materials Rs. 54.51 million, medicinal and pharmaceutical products Rs. 87 million and perfume materials Rs. 86.38 million.

The production of chemicals in India has registered a consistent growth. The average annual growth rate was about 7.4 per cent during the period 1951 - 1956, over 14 per cent during 1956 - 61 and 10.8 per cent during 1961 - 1966. With 1960 as the base year, the index of production rose to as much as 254 in 1970. The industry contributes about 7.4 per cent of the gross output of the economy.

Production of hydrochloric acid in 1970 was 53,500 tonnes and that of nitric acid was nearly 17,000 tonnes. In the alkali chemical group, the output of soda ash (both light and heavy) was 446,500 tonnes. Caustic soda production was 361,460 tonnes. Production of liquid chlorine was 129,400 tonnes. These statistics indicate the growth position of only a few representative items. Indeed the complexity of the industry is such that it has not only enabled successful implementation of active import substitution programmes but also released sizeable quantities for export promotion. In fact, every year several new lines of production are being added. International markets are gradually recognising the fact that chemical products available for export from India are not only competent in terms of quality and end-uses but are also less expensive in view of the labour intensive nature of several products, such as hydro-chloric acid, bleaching powder, sodium bicarbonate, aluminium sulphate and alums of ammonia, potassium chromium, acetic acid, butanol, aceton, diaceton alcohol, synthetic phenol, ethylene glycol etc.

Paints and varnishes is an allied industry where also the Indian economy has made substantial progress. India's overseas supplies of pigments, paints, varnishes and related materials during 1971-72 stood at Rs. 28.46 million. India-made synthetic enamels are particularly popular in East Europe and West Asia. So are also the varnishes and such other materials. The Indian industry is, in fact, in a position to even export technical know-how for establishing factories abroad for the manufacture of standard quality pigments, enamels and varnishes as also synthetic resins.

M/s. Alkali and Chemical Corporation of India Limited, 34, Chowringhee Road, Calcutta-16, is engaged in the manufacture of a wide variety of chemical products ranging from paints, polythene, caustic soda, chlorine, hydrochloric acid, benezene, hexachloride to rubber chemicals, organic fungicides and liquid insecticides. Their export agent, M/s. IMKEMEX India Limited, Clacutta-16, registered an export turnover of Rs. 4.2 million of the company's products. Their supplies have mainly been to the Arab Republic of Egypt. They are also engaged in determined efforts to export to Thailand and Gulf Port markets as well as USSR. The Calcutta firm has been commissioned to build a paints factory at Djakarta (Indonesia). The venture involves supply of technical know-how and machinery as well as equity participation.

EXPORT TRADE IN EMBROIDERY

Embroidery items made in India have a special place in the consumer markets abroad. Embroidered cotton cloth, embroidered handloom silk sarees, silk embroidered yarn, cotton embroidered thread and embroidery as artware are exported every year in substantial quantities. Embroidered cotton cloth, for instance, was supplied abroad to the tune of Rs. 9.07 million in 1971-72. Of this, cotton mill-made cloth netted Rs. 4.31 million, Singapore and Sudan, South Yemen People's Republic and Dubai being the leading markets.

Handloom sarees embroidered with real zari as well as imitation zari are equally popular overseas. Lesotho, Singapore, U. K., U.S.A., Fiji Islands and Hong Kong were the principal buyers of the real zari embroidered sarees while Singapore, Kenya, Hong Kong and U.S.A. were the main recipients of the imitation zari embroidered sarees.

Embroidered cotton thread is also available from India for export. Burma and Afghanistan were the leading importers in 1971-72; annually the thread earned foreign exchange worth Rs. 0.6 million. Silk yarn for embroidery fetched Rs. 0.41 million, Kenya being the principal buyer. Substantial quantities of embroidered artware are also on the export stream. The product earned as much as Rs. 4 million in 1971-72, with U.S.A. as the main buyer at Rs. 2.77 million. U.K., France, Italy, Canada, German Federal Republic and Denmark were among the other buyers for the product.

Messrs Vadilal Embroidery Unit, Bombay, a member firm of the Silk & Rayon Textiles Export Promotion Council, Resham Bhavan, 78, Veer Nariman Road, Bombay-20 has specialised in the export of embroidery of full voile, cambric and velvet as well as nylon satin. Their total production in 1971-72 was of

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the order of Rs. 7.33 million of which over 15 per cent is exported (Rs. 1.05 million). Their export performance in the year was an improvement over Rs. 0.93 million in 1970-71 and Rs. 0.65 million in 1969-70. Their range of production includes embroidery of voil, cambric, petticoat, Rubia voil, nylon satin, nylon georgette velvet etc. Embroidery on these materials is done by them with either cotton by cotton or white/coloured artsilk and cotton thread in a wide range of colours, designs and repeats.

MANGO JUICE ON EXPORT STREAM

Preserved fruits and fruit preparations manufactured in India have come to enjoy wide popularity in the overseas markets in recent years. In 1971-72, exports of these products earned foreign exchange to the tune of Rs. 18.35 million as against Rs. 17.26 million in the preceding year. Mango juice constituted the major single item of export, earning as much as Rs. 12.52 million (5.91 million kg.) Other fruit juices netted Rs. 1.07 million. Mango slices were exported to the tune of Rs. 1.36 million, while mango jams earned Rs. 1.06 million. Besides, preparations of other fruits including marmalades and jams as also fruits preserved in syrup are active on the export stream.

U.S.S.R. occupied the number one position among the buyers of mango juice, absorbing worth Rs. 8.16 million (4.5 million kgs.) and accounting for over 65 per cent of the total export value of the juice. Saudi Arabia was the second important destination whose total intake was valued at Rs. 1.2 million (0.47 million kgs.), followed by South Yemen People's Republic at Rs 1.08 million (0.35 million kgs), U.S.A. at Rs. 0.22 million and U.K. at Rs. 0.16 million. Besides, Bahrein Islands, Dubai, Kuwait, Singapore and Somalia, etc. were the other markets.

Mango slice, the second important item was imported mainly by U.K., U.S.A., Federal Republic of Germany while mango jams were mostly purchased by Kuwait, Federal Republic of Germany, U.K., U.S.S.R., U.S.A., South Yemen People's Republic, Saudi Arabia, etc.

The popularity of Indian mango juice, particularly in the Soviet market, is evident from the repeated orders received for bulk supplies.

The North Arcot Cooperative Fruit Processing Factory at Vellore (Tamil Nadu) after executing a small order for 80 tonnes of mango juice valued at Rs. 105,000 to U.S.S.R. in 1971 received a fresh order to the tune of Rs. 750,000.

The Company, set up in 1969, went into production in 1971. Its operation ranges from washing, picking, de-seeding to pre-heating, pulping, finishing, super finishing, de-aerating, pasteurising and filling juice into vacuum containers for export. The firm extracts juice and pulp from mangoes and tomatos and also prepares slices of pine-apple.

PAPER MILL PLANT IN KENYA

A paper mill plant, M/s. Pan African Paper Mills (EA) Limited is being set up in Kenya with Indian know-how and management. The foundation stone for the plant for which the collaboration is to come from an Indian firm, M/s. Orient Paper Mills Limited, was recently laid by the President of Kenya, Mr. Jomo Kenyatta. The Rs. 314 million plant is to be one of the largest industrial undertakings in East Africa. The manufacturing capacity of the plant is to be of the order of 150 tonnes of pulp and paper per day. Besides, caustic soda and chlorine are also to be produced at the chemical plant attached to the main paper plant.

The Indian industry has made good headway both in the manufacture of paper and its products as also in the production of paper mill machinery. India's paper and paper board production is of the order of 760,000 tonnes per year currently. The country's paper products earn substantial foreign exchange every year - Rs. 29.41 million in 1971-72. The range of items exported includes printed and writing paper, bamboo craft pulp, tissue paper, exercise books and diaries, carbon paper, stencils, paper bags and boxes, books and publications etc.

The country has also started exporting technical know-how and indigenous machinery and equipment. The organised pulp and paper machinery sector in the country has 13 active units with an installed capacity of about Rs. 66 million per year. It has advanced sufficiently to be able to produce and export even sophisticated equipment.

EXPORT PERFORMANCE AND POTENTIAL

THIRD ASIAN FAIR INAUGURATED

The Third Asian International Trade Fair has been inaugurated by India's Prime Minister, Mrs. Indira Gandhi on November 3, 1972. The fair, has a particular significance for the developing countries who, despite great odds are making determined efforts to diversify and modernise their economies. As the share of developing countries has steadily diminished while the volume and value of world trade have considerably expanded in the last two decades, urgent efforts would be necessary to arrest this trend lest the share which is already low at 17 per cent should further decline, even though two-thirds of man-kind live in these developing countries, stated the Prime Minister.

Referring to the role of advanced countries in the context of economic reconstruction of developing countries, Mrs. Gandhi felt that "Unfortunately the trend to connect technology with aid policies and the inadequacy of national, regional or international machineries which would enable developing countries to import the relevant technologies on reasonable terms has severely inhibited the efforts of many developing countries to use technology as the means to self-reliant development". However, progress can no doubt be made and accelerated through technological exchange between developing countries themselves. Such exchange should enable them to profit from each others' experience and in generating technology indigenously and also in acquiring foreign technology. The Fair which will coincide with the 25th anniversary of India's independence is to give a glimpse of what the economy has been able to achieve. "In these two and a half decades, the goal of our political and economic programmes has been to provide the bare necessities of life to all sections of our people. An old, unequal society is in the process of becoming an equalitarian, modern one".

"Many new industries and technologies have been planted on our soil. Until just the other day, India, the world's second largest nation, was not producing any machinery or basic industrial goods worth mentioning. Now we have the ability to design and build our own aircraft, our own steel mills and our own atomic power houses", the Prime Minister added.

"The struggle (towards progress) is not ours alone. Most countries of Asia, of Africa and Latin America are beset with the same problems". Asia should cast aside its differences and unite, not in opposition to other continents and regions, not in any spirit of Pan-Asian chauvinism, but solely for the welfare of its peoples who have so long been harried and impoverished and who so desperately need peace and the wherewithal to live in decency and honour.

While inaugurating the Third Asian Fair, Mrs. Gandhi expressed the hope that it would reveal not merely the old and new manual and technological skills of Asian and other countries, but also their desire and determination to reach out to others in friendship and in the common endeavour to slove the problems of mankind and to create conditions in which all can flourish.

Earlier the Foreign Trade Minister, Mr. L. N. Mishra, in his welcome address, called for joint and concerted action on the part of the Asian countries to accelerate the pace of development. He mentioned that as many as 47 nations of the world and nineteen international firms were participating in this fair. "Asia 72 reflects in microcosm the basic characteristics of the Continent. In this fair, we shall discover what we can contribute to each other's progress for giving greater substance to the programme devised by the ECAFE". It would provide numerous useful avenues for joint and concerted action in all spheres of economy and social life, in industry and agriculture, trade and finance, employment and education, health and housing and science and technology, the Minister hoped.

WIRE ROPES IN EXPORT TRADE

India's exports of wire ropes/cables (not insulated) improved from Rs. 17.45 million in 1969-70 to Rs. 19.90 million in 1970-71. During 1971-72 also the uptrend was noticeable at Rs. 19.85 million.

As in the preceding two years, wire ropes of black iron and steel at Rs. 10.72 accounted for more than half of the total export value in 1971-72. Bulgaria with an intake worth about Rs. 3.50 million was the major buyer. U.S.S.R. which imported worth Rs. 1.42 million was the second leading buyer, followed by

Yugoslavia at Rs. 1.20 million and Malaysia at Rs. 1 million. Singapore, Thailand, Canada, Australia, Bahrein Islands, Fiji Islands, Kuwait and Philippines were the other important buyers.

The export earning of galvanised iron and steel wire ropes, the second important export item in the group, was of the order of Rs. 7.87 million during 1971-72. Yugoslavia with an import worth Rs. 3.90 million topped the list of importers for this item. U.S.S.R. again was the second leading purchaser with an intake worth about Rs. 1.22 million. The other important buyers were : Hong Kong (Rs. 3,78,844), West Germany (Rs. 2,78,736), Korea Democratic Republic (Rs. 2,04,965), Nigeria (Rs. 1,71,570), Greece (Rs. 1,37,365), Malaysia (Rs 1,10,075), Thailand (Rs. 1,73,274) and Singapore (Rs. 1,62,688).

Stranded wire of iron and steel earned Rs. 460,000 in foreign exchange while other ropes of steel and iron added Rs. 800,000 to the foreign exchange earning. Overseas supplies of the stranded wire were confined to Burma, U.S.S.R. and Mauritius at Rs. 251,165, Rs. 192,938 and Rs. 13,227, respectively. Other iron and steel ropes were supplied chiefly to Nepal at at Rs. 406,209 and Burma at Rs. 232,453. Bahrein Islands, Kuwait and Qatar were the other important markets during 1971-72. A small quantity of wire ropes of copper and copper alloys was exported to Sri Lanka during the year.

With an installed capacity of 36,240 tonnes, the production of the 9 units engaged in the manufacture of steel wire ropes in the organised sector was of the order of about 20,000 tonnes in 1971.

EXPORT TRADE IN AUTOMOBILES

The automobile and ancillary industry in India has a definite role to play in the export growth of engineering products. The foreign exchange earning of road motor vehicles in 1971-72 was of the order of Rs. 119.80 million.

The passenger motorcars group, mainly jeeps and land rover type vehicles, earned Rs. 1.9 million. Singapore and Sri Lanka followed by Nepal were the principal markets. Nearly 315 buses were supplied in the year at a value of Rs. 19 million. Sri Lanka imported worth Rs. 9.10 million while Arab Republic of Egypt and Nigeria purchased worth Rs. 4.4 million and Rs. 2.7 million, respectively. ARE, Sri Lanka and Nigeria were the leading purchasers of assembled lorries and trucks whose total export value was Rs. 2.72 million. Sri Lanka again was the principal buyer of chassis with engines mounted for passenger motor cars whose total export value was Rs. 12 million; the Sri Lanka's share was as much as Rs. 10.15 million. Bodies, chassis and frames of vehicles other than motor cycles comprised another important group with an export earning of nearly Rs. 52 million in the year. Some exports of motorcycles, motor scooters, auto-cycles and their accessories were also effected.

In the year 1971 the installed capacity for commercial vehicles was as much as 62,400 numbers. Actual quantum of production was 40865 numbers. The existing capacity in 1971 for motorcycles. scooters, mopeds and three-wheeless is of the order of 167,300 numbers of which the actual production in 1971 of motorcycles was 39,730 numbers valued at Rs. 140 million, 67,212 numbers of scooters valued at Rs. 158 million, 14,115 numbers of mopeds and scooterettes at a value of Rs. 19.36 million and 6.145 numbers of three-wheelers valued at Rs. 34 million.

BOOST IN EXPORT OF CASTOR OIL

The export value of castor oil from India shot up to Rs. 61.79 million in 1971-72 from Rs. 34.65 million in 1969-70, registering an increase of more than Rs. 27 million. The export value during 1970-71 was of the order of about Rs. 59 million.

During 1971-72, USSR who is the principal impoter of castor oil from India imported worth Rs. 55.40 million as against Rs. 20.30 million in 1969-70, accounting for an increase of more than Rs. 35 million. During the same year German Democratic Republic and Turkey also bought worth Rs. 1.63 million and about Rs. 1 million respectively while in 1969-70 their import was nil. Marginal improvement was also witnessed in export supplies made to Malaysia, Nepal, Sudan, Sweden, Tanzania, and U.S.A. In fact, the earning in the year 1971-72 would have been much more compared to 1969-70, but for a sharp decline in the intake by Czechoslovakia, from Rs. 11.30 million in 1969-70 to only Rs. 3.86 million in 1970-71. Moreover, some of the countries like Australia, Hungary and Arab Republic of Egypt, Yugoslavia whose import of Indian castor oil during 1969-70 was of the order of Rs. 146,000, Rs. 150,000, Rs. 421,000 and Rs. 872,000, respectively did not figure in the export list for the year 1971-72. A marginal decline during the year was also witnessed in exports to other countries such as Sri Lanka, Ghana, Kenya, New Zealand, Singapore etc.

The export earning of the entire group of soft vegetable oils including castor oil, cashew shell oil, linseed oil, palm oil, coconut oil, chaulmoogra oil, til or jinjilli seasamum oil etc. was up at Rs. 69 million in 1971-72 as compared to Rs. 47.17 million in 1969-70, and Rs. 68.72 million in 1970-71.

EXPORT POSITION OF MEDICINAL AND PHARMACEUTICAL PRODUCTS

India's export of medicinal and pharmaceutical products improved by Rs. 2.35 million in 1971-72 over the export performance of these products in 1970-71. The total foreign exchange earning was recorded at Rs. 87 million in 1971-72 as against Rs. 84.65 million in the preceding year.

Medicaments constituted the principal items of export in 1971-72, earning foreign exchange as much as Rs. 59.49 million. In this category Ayurvedic and Unani Medicines, Homeopathic medicines, Antibiotic drugs, antacid digestive preparations, Asthma, catarrh and hayfever preparations, chemical, medicinal contraceptive foam tablets, ointment, vaccines, gripe water, headache nuralgia pain remedies, tincture iodine, magnesium trisilicate, ointments for burns and cuts, cough cold catarrh and bronchital infections, proprietory patent medicines, botanical drugs, synthetic derivatives, and others were exported. The prominent buying countries were Kenya, U.K., Thailand, Sri Lanka, Australia, Brazil, Japan, Mexico, Nepal, Nigeria, Arab Republic of Egypt, Switzerland, U.S.A., Federal Republic of Germany, German Democratic Republic, Iraq, Iran, Kuwait, Malaysia, Mauritius, Uganda, etc.

Opium alkaloid, cocain faffin, quinine, other vegetable alkaloids salts and other derivatives constitued the second important group which earned as much as Rs. 11.84 million. A large number of items was exported in this category in 1971-72. Salt and other derivatives of quinine were the main items which fetched foreign exchange at a value of Rs. 4.82 million. U.S.S.R. was the principal importing country whose total intake was valued at Rs. 3.09 million (13320 kgs.), followed by Bulgaria at Rs. 1.34 million (3500 kgs.). Czechoslovakia, Singapore and Kenya were the other destinations. Besides, the export values of other items were : Quinine sulphaid Rs. 2.72 million, vegetable alkaloid Rs. 1.13 million and brucine Rs. 1.08 million.

Pharmaceutical goods were exported at a value of Rs. 4.24 million. Of this, bandages alone earned Rs. 2.60 million. Besides, adhesive bandages (Rs. 0.65 million), adhesive tapes (Rs. 0.15 million), dental cement for dental fillings, plaster of paris, medicated lints, Kaolin poultice etc. were the other important items. Australia, Sri Lanka, Kenya, Ghana, Jordan, Ireland, U.K., etc. were the prominent markets.

TRADE PROTOCOL WITH GDR SIGNED

A Trade Protocol envisaging mutual trade turnover of Rs. 690 million in 1973 has been signed between India and German Democratic Republic.

Besides exports of various traditional commodities like deoiled cakes, cashew kernels, tea, coffee, cotton textiles, jute manufactures etc; a number of engineering and non-traditional items, including consumer goods have been included for export to the G.D.R. Some of these items are cotton ready-made garments, linoleum, shoes and chappals, leather goods and garments, sports goods, electrical motors and switch gears, hand-knitting machines, machine tools, wire ropes, aluminium cables, castings and forgings etc.

The principal items of India's import from the G.D.R. during 1973 will be printing machinery, steel and steel products, textile machinery, optical and scientific instrumsent, X-Ray films, cinematographic colour films, chemicals, muriate of potash (fertilizer grade), potassium chloride, etc. In 1971-72, India's exports to G.D.R. amounted to Rs. 179.49 million and India's imports were Rs. 202.38 million.

INDO-CZECH TRADE PROTOCOL

Pursuant to discussions held between India's Foreign Trade Minister, Shri L. N. Mishra and the visiting Deputy Prime Minister of Czechoslovakia, H. E. Mr. J. Gregor, a Trade Protocol for 1973 has been signed.

The Protocol envisages a trade turnover of Rs. 1300 million between the two countries in 1973, an increase of about 18 per cent over the 1972 estimated level.

Besides exports of various traditional commodities like deoiled cakes, cashew kernels, tea, coffee, cotton yarn, cotton textiles, jute manufactures, etc. from India to Czechoslovakia, there are a number of engineering and non-traditional items, including consumer good, such as ready-made garments, linoleum, textile machinery, machine tools, drugs and medicines, wall tiles hand tools and small tools, sanitary fittings, pipes and fittings, toileteries and cosmetics, synthetic detergents in the Trade Protocol.

The principal items of import into India from Czechoslovakia during 1973 will be components and spare parts for tractors, machine tools, steel and steel products, newsprint, components and raw materials for Czechoslovak-assisted industries, shunters, refractories, printing and polygraphic machinery, etc.

In 1971-72, India's exports to Czechoslovakia amounted to Rs. 304.47 million while her imports from that country were Rs. 101.69 million.

ASIAN TRADE EXPANSION PROGRAMME

The second meeting of the Trade Negotiations Group of the Asian developing countries is scheduled to be held at Bangkok in January 1973. The meeting is to review the information on products in which the countries have significant export capabilities and import opportunities; trade regimes of individual countries, facilitation measures required by each country and possibilties for cooperation in commodity-trade, joint ventures and other areas relevant to trade expansion.

The first meeting of the Trade Negotiations Group was held in Bangkok in February 1972. The meeting was primarily held to identify the countries interested in the Asian trade expansion programme.

The Council of Ministers for Asian Economic Cooperation in their Kabul declaration of December 1970 proposed a meeting of an inter-governmental committee of trade expansion. The committee met in November 1971 when it was decided to launch the Asian Trade Expansion Programme under the auspices of ECAFE.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

INDIA'S FIFTH FIVE YEAR PLAN

AN APPROACH

Economic self-reliance, abolition of poverty, expansion of employment opportunities and stress on implementation—these constitute the foremost objectives of India's Fifth Five-Year Plan (1974-79).

Nearly Rs. 511,650 million worth of financial investment is estimated to go into the Plan (1971-72 prices). Supplementary foreign assistance is also expected. The public sector outlay is envisaged at Rs. 355,950 million. About Rs. 58,500 million is estimated to be the current development outlay excluding which, the balance available for public sector investment would amount to Rs. 297,450 million. The provision for the private sector investment is set at Rs. 155,700 million. The projected distribution of investible resources between the public and private sectors is thus in the ratio of 65.6 to 34.4.

By reducing the net aid to zero by the final year of the plan, it is expected that the fulfilment of the self-reliance goal will be carried a step further. To this end the plan proposes to consolidate endeavours towards self-sufficiency in foodgrains, increased production of cotton and oilseeds, as also step up the output of steel, non-ferrous metals, fertilizers, crude oil, petroleum products, engineering ancillaries and basic chemicals.

The average annual rate of growth during the plan period is targeted at 5.5 per cent. Since the aggregate rate of growth cannot by itself significantly raise the consumption levels of the poorer sections of the economy, the composition of growth rate has been worked out to enable 30 per cent of backward population to attain a more satisfactory level of living. The growth pattern lays emphasis on agriculture, key and basic industries as also industries producing goods for mass consumption.

While further intensification on the export front is assumed for the plan period, a greater degree of import substitution is also envisaged so that the country can reach the objective of zero net aid by 1978-79. While designing the objectives for the plan, care has been taken to provide special attention to backward areas in terms of industrialisation, and provision of employment opportunities. Priorities to be accorded to the backward classes in the implementation of the National Programme For Minimum Needs, integrated child care services, encouragement of talents among students, efforts to improve living conditions of the masses, maintenance of a reasonable balance between wages, prices and incomes, organisation of adequate public procurement and distribution systems for assured supplies of essential consumption goods, greater utilisation of existing industrial capacities, an attempt to remove imbalances and intra-sectoral distortions in the economy—all these form part of the total approach to the Plan. Indeed, top priority will be accorded to implementing the objectives set forth and by ensuring real national participation at every level which only could turn the Plan to be truly a people's Plan.

ADDITIONAL CAPACITY IN EXPORT ORIENTED UNITS

India's industrial licensing policy has been modified to provide for certain relaxations in favour of export oriented industries. The relaxations are to enable creation of additional manufacturing capacity with the ultimate objective of promoting exports.

Large industrial houses, foreign companies and their subsidiaries or branches are, under the modified policy, expected to concentrate mainly on the core and heavy industry sectors. They are, however, licensed to participate in the other sectors also if they undertake specific export commitments - a minimum export obligation of 60 per cent of the new or traditional production has to be achieved within a maximum period of three years - and if the proportion of production to be allowed for internal sales would not be so large as to swamp other producers.

The Government of India will also consider on merits the proposals for expansion of capacity from 'dominant undertakings' provided they undertake a minimum export commitment of 60 per cent of the quantum of expansion. The exact percentage is to be decided with reference to the facts of each case.

In regard to industries reserved exclusively for the small scale sector, proposals for creation or expansion of capacity from units other than small units can also be considered if they undertake a minimum export obligation of 75 per cent of their new or additional production to be achieved within a maximum period of three years. Here again, it would have to be ensured that the proportion allowed for internal sales is not so large as to swamp small scale industries.

Applications of export-oriented units for industrial licences, Capital Goods licences, foreign collaborations, maintenance imports of raw materials and components are being given priority for disposal by Government departments.

To start with, 20 production groups have been identified as having maximum export potential in this context. They are pig iron, mild steel, tool alloy and special steel; electronic equipment and components; aluminium metal; petro-chemicals and derivatives thereof, integrated petro-chemical complexes, Dyes and Intermediates and drugs and pharmaceuticals; plastic resin and manufactures; metallurgical equipment, small and cutting tools; handtools, metal cutting machines, metal forming machines and chemicals and fertiliser plants; automobile ancillaries; ferrous castings and forgings and structurals, steel fabrications; aluminium metal manufactures; sewing machines and bicycles and sewing machine and bicycle components; processed foods - marine products, canned fruits and vegetables; leather and leather products and rubber manufactures including tyres and tubes; and other selected products in the small scale sector. In respect of import of capital goods by export-oriented units, a scheme for giving high priority was already introduced as far back as in March 1967. It was decided to give high priority to the allotment of capital goods, equipment, dyes, jigs and tools (not indigenously manufactured), to the exporting units and exporting industries for the purposes of expansion, modernisation, diversification and production facilities for increasing exports. These special facilities were made admissible to manufacturers with good export performance with a view to enable them to further itensify their export drive. The scheme continues in force.

REDUCED IMPORT CONTENT IN SELECTED INDUSTRIES

With the development and diversification achieved in several sectors of the Indian industry, the import content in the final manufacture of many products has been gradually reduced.

For instance, in respect of vertical type of diesel engine up to 1500 hp and horizontal type of diesel engine up to 40 hp, the import content is nil. For other types of diesel engine (excluding engines for ocean going vessels) the indigenous content is as much as 95 per cent.

For commercial vehicles, the percentage of import content varies between 1 - 8 while for motorcycles, it is between 2 - 5.

In the agricultural tractor industry, the share of import content is 10 - 50 per cent. The ten per cent import content is being permitted only to those tractor manufacturers who have been in the production for the last few years while the 50 per cent import content pertains to new units that are likely to go into production shortly. Up to 25 per cent of import content is being allowed for power tiller manufacturers. Initially the CKD packs were permitted based on an imported content of 35 per cent but the present rate is at a lower level.

Import content is negligible in the production of power driven pumps as the industry has already attained a high indigenous content as near as 100 per cent. Import is being permitted only for items like mechanical seals, special steel and such bearings that are not produced indigenously.

For crawler tractors the import cantent is presently between 30 to 40 per cent.

The percentage share of import in the manufacture of sugar mill machinery is about 8 per cent while for building and construction machinery, it is up to 10 per cent. For tea processing, tobacco processing machinery rubber machinery the import content presently is 8 per cent, 7 per cent and 10 per cent respectively.

In the rayon and synthetic fibre machinery sector, the import content varies between 8 and 35 per cent. The former figure relates to rayon machinery and the latter for synthetic fibre machinery.

Only 5 per cent of the total manufacture value of mining and coal washery plant is being imported now. Excluding steel items, the import content in the boiler industry is 8 to 12 per cent for the industrial boiler variety and 25 per cent for the power variety.

For complete paper plant up to 50 TPD (Tonne per day) capacity the import content in the paper and pulp machinery industry ranges between 30 to 35 per cent.

SPOTLIGHT ON JUTE MILL MACHINERY

With 14 registered units engaged in the manufacture and an installed capacity of 12,820 numbers per annum the jute mill machinery industry in India is today capable of producing practically the entire range of machinery including cards and roll formers, roll winders, broad looms etc., needed by jute mills. Additionally, about 21 units manufacture spares and accessories with a capacity of 1358 tonnes valued at Rs. 106.35 million. The jute mills in India made quick strides in modernisation and diversification of the machinery utilised by them. Modernisation up to the preparatory and spinning sections is complete and good headway has been made in modernising in the post-spinning sections such as winding, prebeaming and sizing. The design and construction of the latest type of automatic loom is being tried under the existing mill conditions.

The jute industry is rapidly switching over to the production of non-conventional and sophisticated goods like carpet backing and specialities like bleached, dyed, coated, printed, printed and liminated fabrics and fine yarns. The industry has indeed evinced interest in modernisation of its machinery, particularly in rectification of machinery imbalances in preparatory and spinning sectors in order to run installed hessian, sacking and carpet backing looms to full capacity.

With a sudden spurt in demand for the machinery and equipment of the jute industry, particularly in the wake of the disturbed situation in Bangladesh and virtual suspension of shipments of jute goods from that country, indigenous machinery manufacturers were not able to fully cope up with the demand, and temporary imports have had to be arranged for the supply of a large number of preparatory and spinning machinery. Similarly products of cards and roll formers, fell short of the domestic requirements. Here again, the immediate requirement is being met through imports. As for roll and cone winders, already there are two indigenous manufacturers and an industrial licence for the manufacture of modern high speed "Gilbos" type roll/cone winders in collaboration with a Belgian firm has been issued recently. In respect of industrial sewing machines, high speed automatic cop winders and mach-high first drawing frames for sacking deft also, the requirements are being met through imports.

Good progress has, however, been registered in the manufacture of components and spares and accessories of jute machinery. A Calcutta-based unit has successfully commenced the production of full aluminium staves, forged steel shuttle tips and grooved insert mail eyes which were so long imported. The proportion of imported components in the manufacture of finished machinery is also being reduced as far as possible.

The total value of machinery and spares production in India during 1971-72 (upto December) was of the order of Rs. 34.5 million as against Rs. 27.5 million in the previous year. To speed up the pace of modernisation and to correct imbalances in demand and supply of finished jute machinery including drawing and spinning frames, imports worth Rs. 16 million were allowed during 1971-72.

The total requirement of jute mill machinery during the Fourth Five Year Plan period ending 1973-74 has been assessed at Rs. 403.10 million of which the indigenous element will be about Rs. 345.3 million and the imported share Rs. 57.8 million. The imported machinery includes 170 first drawing (coarse), 417 automatic cop winders and 571 sewing machines, for which indigenous manufacturing facilties have not yet started.

While this being the picture of production, jute mill machinery has long back entered the export trade. In 1970-71 the export value was of the order of Rs. 14.6 million. Jute fibre spinning winders and reeling machinery was mainly exported to Kenya, Ethiopia while jute mills were supplied to Kenya, Singapore and Togo. Parts and accessories of jute spinning machinery which are the main stay of exports were supplied among others to Kenya, Burma, Belgium, Ethiopia, Nigeria, Philippines, Poland, Singapore, Thailand and Arab Republic of Egypt.

PULP AND PAPER MILL MACHINERY

Pulp and paper making machinery industry provides an interesting example of a lately started and rapidly developed sector of manufacture towards self-reliance. Regular production in the line started only in 1960. Today the total annual licensed capacity is Rs. 113.8 million and the installed capacity is Rs. 65.6 million. The capacity is distributed among thirteen units. The capacity can be divided into three distinct categories, namely, small scale plants with investment for production of paper ranging from 2 tons to 10 tons per day, medium scale plants with capacity up to 50 tons per day and miscellaneous equipment such as fourdrinier wire cloth, brown stock washing system, elastic calendar bowls etc. The broad types of equipment already manufactured in India include complete small scale paper plants, complete board mill plants, paper coating plants, tissue making plants, fourdrinier wire cloth, brown stock washing system, screens, refiners, elastic calendar bowls etc.

Consequent on the rapid increase in the demand for paper and paper based packings, it became necessary to plan expansion of the existing paper mills and the establishment of new mills of high capacity plant ranging up to 150/200 tons per day capacity. To bridge the gap between demand and installed capacity, the Government of India invited applications for the grant of industrial licences in early 1971. As a result, several new schemes for manufacture of 150-200 TPD paper plants including that of M/s. Jessop & Co., Calcutta have been approved. Today, the industry is capable of manufacturing complete large scale pulp and paper making plants.

Production in this field since 1963 has increased four-fold – Rs. 13.4 million in 1963 to Rs. 53.5 million in 1971. Also the import content in the industry has been gradually reduced and today it is only 30 to 35 per cent for complete paper plant up to 50 TPD capacity.

Interestingly, the pulp and paper milling machinery has already entered the export market. In 1970-71, the export value was as much as Rs. 0.60 million. The machinery including fourdrinier wire cloth is being exported to countries like Sri Lanka, Hungary, Qatar, ARE, Greece, Sweden, Thailand, Bolivia and Rumania. It is hoped that the export of fourdrinier wire cloth to West Asian and African markets will improve further in the near future.

The target capacity for the manufacture of pulp and paper machinery by 1973-74 has been placed at a value of Rs. 150 million while the export production in that year is expected to be of the order of Rs. 135 million.

SWITCHGEARS AND CONTROL GEARS

Including a number of items, namely, circuit breakers, motor starters, contractors, Isolators, current and potential transformers, switchboard and control panels, lightning arrestors, relays, powerline carrier equipment, the switchgear group of industries produced Rs. 451 million worth in 1971 as compared to Rs. 398 million worth during 1970 (the production refers to the industrial units borne on the list of the Directorate General of Technical Development, Ministry of Industrial Development). About 11,000 manufacturing units engaged in the production of switchgears and control gears, motor starters, produced 383,000 numbers valued at Rs. 59.22 million in 1971. Their installed capacity (1971) was 378,000 numbers per year. An additional capacity of 102,000 numbers has since been licensed.

Production of power line carrier equipment and thyristorised drives has commenced indigenously. Schemes have been approved for the manufacture of high voltage HRC Fuses in India. The tempo of production in the line has been encouraging and L. T. switchgears up to 4000 Amps., HT Switchgears of 220 KV are being now produced. With a decision to adopt 400 KV as the next voltage, steps have been taken to meet the potential demand for switchgears for this voltage range for developing them wherever it could be done within the licences already issued.

The value of production of all types of capacitors also registered an increase. It went up from Rs. 21.71 million in 1970 to Rs. 34.10 million in 1971. Power capacitors for HV systems are also being indigenously produced.

The Rectifiers and Silicon Diodes Industries also registered substantial increase in production. Thyristors were taken up for production for the first time in 1971. Silicon diodes of up to 500 Amps are also being manufactured.

A number of switchgear products are now available for export from India. The exportable items include static converters, rectifiers and rectifying apparatus, oil circuit breaker for use above 660 V, oil circuit breaker and oil switches of rating 10 amps or below for use of 660 V or below, oil circuit breaker and oil switches of rating over 10 Amps for use at 660 V or below, motor starter for AC motors running at constant speed including reversing starters at 660 V or below, motor starters for AC motors running at constant speed at above 660 V, motor control gear and motor starters for D. C. motors, switch fuse units of switch rating up to 15 Amps, Rewirable, switch fuse units of switch rating above 15 Amps high rupturning capacity or rewirable, fuses rewirable, fuses rupturning capacity, fuse gear, relays, switch board and control panels, switches of plastics, switches of other materials, control and switchgear, lightning arrestors, parts and accessories of switchgear etc. power capacitor, ½ KVA and above, electrolytic condenser for power excluding switchgear, other electrolytic condenser, electrolytic condenser parts and telephone and wireless condenser. Of these switchboard and control panels, oil circuit breakers and oil switches of rating 10 Amps or below for use of 660 V or below, motor starters, motor control gears, switches of plastics and other materials and switchgear parts and accessories are important export items.

Some imports in this line are, however, being still made. For instance, import of relays amounted to Rs. 5.57 million in 1970-71 while that of switchboard and control panels was Rs. 3.7 million and rectifiers and rectifying apparatus Rs. 1.07 million and oil circuit breakers for use above 660 V nearly Rs. 1 million.

SOME FACTS ON COTTON TEXTILE INDUSTRY

The installed capacity of India's cotton textile industry as on May 31, 1972 was 18.36 million spindles and 208,000 looms. There were 684 cotton textile mills - 394 spinning and 200 composite.

Production of cotton yarn which had fallen in 1971 due to high prices of Indian cotton has gradually picked up in 1972. It is estimated that yarn production during 1972 will touch 985 million kgs. Count groupwise, the yarn production in 1971 was 103.53 million kg. for 1-10 counts, 224.33 million kg. for 11-20 counts, 252.88 million kg. 21-30 counts, 177.17 million, kg. for 30.40 counts, 73.58 million for 41-60 counts 27.90 million kg. for 61-80 counts and 21.61 million kg. for counts beyond 80. Thus the total production of yarn in 1971 was only 881 million kg.

Production of cloth by the mill industry in 1971 was 3957 million metres of which coarse cloth was 503 million metres, fine cloth 247 million metres, superfine cloth 416 million metres and the rest medium A and B. In the first five months of 1971 (January - May) the total cloth production by the mill industry was 1740 million metres.

There was a fall in cotton cloth production during 1971 as compared to the previous year (4157 million metres). During 1972, however, the cloth production is showing signs of steady increase. On the basis of production in the first five months, it is estimated that the mill sector during 1972 will produce 4290 million metres which will be an improvement over even the production in 1970. In the first six months of 1972 (January-June) exports of mill-made cottont extiles were of the order of Rs. 655.6 million compared to Rs. 510.00 million in the corresponding period of 1971 and Rs. 583 million in the same period of 1970. In terms of quantity, the first half of 1972 witnessed an export of 194 million square metres for piecegoods. Not only the value of exports but even the average unit value realisation has improved. Yarn exports amounted to 9.6 million kg. in the first half of 1972 as against 6.3 million kg. in the same period of 1971. In the corresponding period of 1970, however, the yarn exports totalled 19.3 million kg.

SEED PROCESSING PLANT SET UP

A seed processing plant, first of its kind in Asia, has recently been set up at the campus of the Indian Agricultural Research Institute (IARI) in Delhi.

The plant has been set up by the National Seeds Corporation (NSC) at a cost of Rs. 250,000 with indigenously manufactured equipment. It combines the facilities of a continuous cycle of seed processing in a systematic manner, like drying, scalping, cleaning and grading and upgrading the seeds of different crops in special machines. It will also perform complex operations like treating the seed chemically to considerably increase its storage life. It will also be used for weighing, bagging, tagging and sealing the seeds in bags automatically. The plant also has the facility of six storage bins which would make possible the storage of processed or semi-processed seed.

The complete operation and control of the plant could be done by a single operator sitting at a central control panel inside a glass cabin which gives him a commanding view of the entire machinery and low line of seed. The central control panel has been so devised as not to affect the individual control of the individual machines during emergencies and the indispensable cut-off switches have been incorporated.

In India the area under wheat crop was 28 million acres and for one acre 40 kg. of seed was required. For 28 million acres the total requirements of seed was 11.20 million quintals. The present production of wheat seed by the NSC was only 80,000 quintals sufficient for 200,000 acres. The plant now set up by NSC has a capacity of handling 12 tonnes of seeds per day per shift of eight hours.

AUTOMATIC WATCH FACTORY UNIT INAUGURATED

The Rs. 40 million second unit of the public sector Hindustan Machine Tools watch factory to manufacture automatic day and date wrist watches was recently inauguarated at the HMT Complex in Bangalore.

At full production, the new watch unit is envisaged to turn out 200,000 day and date watches every year. The factory would start assembly of 20,000 watches during the current year.

The first unit of the HMT watch factory at Bangalore has an approved capacity of 360,000 numbers of ordinary watches per annum.

Lately, India-made wrist watches have entered the export field also, though in a limited way. The value of such exports was Rs. 53,203 during 1971-72 as against mere Rs. 16350 in 1970-71.

Hindustan Machine Tools Ltd. Bangalore is a multi-unit company. Besides the watch factory at Bangalore, it is having five machine tool units with an annual capacity of 1000 machine tools per unit. Two of these units are at Bangalore and the others are at Pinjor (Haryana), Kalamassery (Kerala) and Hyderabad (Andhra Pradesh).

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

BENZOIC ACID

A process to manufacture Benzoic acid has been developed by the Regional Research Laboratory (RRL), Hyderabad.

Benzoic acid is used as a preservative in foods, pharmaceutical preparation and cosmetics. In relatively small quantities, it is also used in paints, varnishes, lacquers and enamels.

In the process, tolune containing soluble catalyst and air are passed through a jacketed tubular reactor where the reaction temperature and pressure are maintained between specific ranges. The exit gas containing entrained toluene is passed through an entrainment chamber, condenser and scrubber for toluene recovery. The recovered tolune is recycled back to the reactor.

The reaction product stream containing 30-40 per cent benzoic acid and a small amount of benzaldehyde, benzyl, benzoate and tarry product etc. is steam distilled for toulene recovery and finally benzoic acid is obtained by steam distillation using super heated steam. The catalyst is recovered from the residue.

The developed process has many advantages. It is a single step continuous process with less raw materials. Secondly, it involves only MS agd SS as material of construction and gives purer product with better yields. The cost of production by this process is comparatively less than that of production in the Western countries.

The raw materials required in the process are toluene, air and catalyst and all these are available indigenously. Besides, plant and machinery constitutes storage tank, reactor, condenser, separator, scrubber, regenerator, distillation column, storage vessel, drier, incenerator, compressor, and boiler.

The benzoic acid is imported in India to meet the internal demand. In 1968-69, 75 tonnes of benzoic acid valued at Rs. 319,402 was imported. In 1969, the import increased to 125 tonnes valued at Rs. 4,15,190 and further rose to 174 tonnes valued at Rs. 7,05,905 in 1970-71.

PROCESS FOR ACTIVE CARBONS FROM COCONUT SHELLS

A process to obtain active carbons from coconut shell has been developed by the Regional Research Laboratory (RRL), Jorhat, Assam.

Active carbons obtained from coconut shell are of gas absorbent grade and are used in gas mask, in fertiliser and rayon industries and for the recovery of solvents. Coconut shells which are abundantly available indigenously are used as raw material in this process. The process consists of crushing the coconut shell to the required size, treating with zinc chloride and activating in a rotary kiln. The activated material is washed, palletised, dried and packed. The product obtained through the process conforms to the specifications of commercial grade of active carbons used for similar applications.

At present, good quality gas absorbent carbons are not manufactured in the country and therefore their requirement is met through imports only. The country's present requirement is of the order of 300 tonnes.

The main raw materials required for the process are : coconut shells, zinc chloride; hydrochloric acid and binder and all these are available indigenously. The main items of equipment required are : Jaw crusher disintegrator, digestion vessel, rotary kiln, filter dryer, rotary mixer, tableting machine and boiler. All these are available indigenously.

NEW CAR SAFETY DEVICES DEVELOPED

About half a dozen electronic gadgets having considerable scope for industrial applications, particularly in the automobile industry have been developed by a research scholar of Ahmedabad.

One of the gadgets developed, is an automatic car parking device. It consists of a small box which has to be inserted in an automobiles parking light circuit. The parking lights will be switched on automatically when the vehicle is stationary in the dark. The developed device is operated on a battery power.

PROCESS FOR ACRYLIC CO-POLYMER EMULSION

A process for Acrylic Co-polymer emulsion has been developed by the Central Leather Research Institute, Madras.

By co-polymerising mixture of ester monomers in aqueous media using persulphates as catalyst with suitable emulsifiers, acrylic base coat and top coat for leather finishing are prepared. The base coat resin has good adhesive properties and flexibility and helps to bind the colouring materials to the leather. The top coat resin has good flexibility and adhesive characteristics and gives a medium gloss to the finished surface.

Similarly using organic peroxides as a catalyst and solvents like Xylene or MIBK another type of acrylic copolymer solution has been prepared which by virtue of its good adhesive, gloss and water repelling properties finds application as a top coat for finishing leathers. This lacquer is worked out to be cheaper than the conventionally used N.C. lacquers. The method of preparation is very simple and easily controllable.

The raw materials required are: Methyl acrylate, ethyl acrylate, methylmethacrylate and butyl acrylate (acrylic ester monomers) solvents like MBIK and xylene, catalysts (Persulphates, organic peroxides etc.) emulsifiers (non-ionic and an-ionic). Except monomers all the other ingredients are available indigenously. The monomers are required to be imported for some time. However, the same will be produced indigenously shortly.

The estimated further demand of base coat is of the order of 300 tonnes per annum while that of top coat is estimated at 100 tonnes per annum.

The equipment required includes reaction bottles with necessary auxilliary equipment, steam generator etc.

ENGINEERING INDUSTRY IN INDIA

With 1960 as the base year, the index number of India's industrial production went up to over 186 in 1970-71 as compared to 55 in 1951, while the index of production in the engineering sector shot up to 218. The share of the engineering industry in the country's organised sector works out to about 28 per cent of the total number of factories, 35 per cent of the productive capital, 30 per cent of the total employment, 34 per cent of the value of output and 31 per cent of the value added by manufacture in the economy. In absolute terms the engineering industry in the organised sector has about Rs. 27,000 million of capital invested in manufacturing establishments producing over Rs. 22,000 million on an average every year and providing employment to over 1.5 million people.

While the production of other items rose by 57.7 percent during the sixties, engineering production increased by over 119 per cent. Within the engineering industry, the manufacture of industrial and other machinery showed the highest rate of increase - 249 per cent - followed by electrical machinery and appliances with an increase of over 222 per cent.

The Indian economy today produces a wide range of industrial products including iron and steel, non-ferrous metals, castings and forgings, industrial machinery, machine tools, construction equipment, industrial and scientific instruments, raliway wagons and locomotives, commercial vehicles and passenger cars, agricultural machinery like power driven pumps, diesel engines and tractors; electric equipment such as turbines, generators, electric motors, transformers, radio receivers, T.V. sets, cables etc.

In 1970-71, the country's production of pig iron was nearly seven million tonnes, that of steel ingots 6.14 million tonnes, finished steel 4.48 million tonnes, steel castings 521 tonnes, aluminium 16,7800 tonnes, copper 9300 tonnes, machines tools Rs. 393 million, railway wagons 11,000 numbers, commercial vehicles 41,200 numbers; cars, jeeps and land rovers, 46,700 numbers; motor cycles and scooters 97,000 numbers; stationary and vehicular diesel engines 71,800 numbers; bicycles 2.03 million numbers; sewing machines 235,000 numbers; power transformers 8.09 million KVA; electric motors 2.77 million HP; electric fans 1.72 million numbers, electric lamps 120 million numbers, radio receivers 1.79 million numbers; and electricity generated was 55.8 billion KWH.

The growth of the engineering industry in India over the last two decades facilitated the development of agricultural, industrial and tertiary sectors. Production of pumps, tractors, diesel engines, chemical fertilizers other agricultural equipment made possible the ushering in of green revolution in a large part of the country. The progress of this sector has also helped to lay a firm foundation for the manfacture of heavy electrical equipment, heavy machine tools and a vast array of industrial machinery.

Advance in scientific and technological research has indeed facilitated the development of engineering industries. Thirty national laboratories and institutions exclusively devoted to fundamental and applied research, employing over 12,000 research workers, opened up new avenues in the field of technological research. And so today India can build jet engines or a thorium plant, design computors, develop rocket fuels and manufacture transformers, steel mills machinery, and oil rigs and electronic equipment.

The development and diversification of the engineering industry in India is responsible to have introduced a new dynamism in the country's export trade pattern. From a traditional exporter of raw materials and manufactures, India today has emerged as a competent supplier to the world of sophisticated machinery and heavy engineering items. The country can now export railway wagons and coaches, railway track material, electric wires and cables, steel pipes, tubes and fittings, machine and handtools, diesel engines, iron and steel castings, industrial machinery including jute, textile and knitting machinery,, transmision line towers and poles, telephone equipment, electric fans and sewing machines, steel furniture, agricultural machinery, electronic equipment and even nuclear isotopes.

In absolute terms the export value of India's machinery and transport equipment including base metals was nearly Rs. 2800 million in 1971-72. Commoditywise road motor vehicles, earned Rs. 120 million in 1971-72, railway vehicles Rs. 69.4 million, bicyles Rs. 73 million, non-electric power generating machinery Rs. 55.2 million, textile and leather machinery Rs. 55 million, metal working machinery Rs. 22.7 million, office machines Rs. 21.45 million, electric power

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machinery and switchgears Rs. 47.48 million, equipment for distributing electricity Rs. 54 million, telecommunication apparatus Rs. 30 million, domestic electric equipment Rs. 15.44 million, other electrical machinery and apparatus about Rs. 40 million, iron and steel products Rs. 408 million, non-ferrous metals nearly Rs. 80 million and metal manufactures over Rs. 236 million.

The contribution of the small scale units to the engineering sector has been notable. The average contribution of this sector to the national export was 12 per cent in 1969-70. Besides, the small units helped country's exports by supplying components and accessories to the larger units also.

Regionwise, South-East and West Asian markets absorbed 45 per cent of the total engineering exports. The African countries purchased nearly 30 per cent, East European countries about 10 per cent, West Europe about 8 per cent and the rest by Americas and Australia.

Besides, exporting sophisticated engineering products, several enterprises in India are in a position to render consultancy services and undertake turnkey projects in many engineering fields demanding complicated know-how, plant and equipment, indigenous design and engineering. The country possesses expertise to erect power plants, design and commission steel plants and technical know-how for the manufacture of heavy chemicals, cement, paper, aluminium, fertilizers as well as port development and coal mining. Only recently one of the leading consultancy firms in the country secured an order for the installation of three cement plants in Syria. Indian technologists are preparing feasibility studies or project reports for giant steel works in Sri Lanka, Singapore, Latin America and East Africa. They are advising the United Nations for setting up a ferro alloy plant in Iran. They are setting up a turnkey project for a complete sugar plant in Uganda. Their contribution at the Tunku J' Afar Power Station in Malaysia is well-known. They have a turnkey order for electrification of a textile complex in Libya. Under the IDA (International Development Association) programme, Afghanistan sought Indian assistance for the supply of portable gravel crushing and screening plants and portable bitumen melting plants. India's consultancy services were also sought for expansion of port facilities, and hydraulic model investigation in Singapore. Indian Consortium for Power Projects received turnkey orders for the supply, and commissioning of switchgear and ancillaries for electric substations in Kenya, Malawi and Tanzania. These examples are only indicative.

No doubt, the engineering industry in India needs to develop and diversify more and more to be able to meet the growing world demand. The achievements already made clearly reflect the possibility of further expansion in terms of manufacturing capacity and export competence. □

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SOVIET ORDER FOR SURGICAL INSTRUMENTS

A wide variety of scientific, medical, optical, measuring and controlling instruments is exported by India to world markets. The export value of these instruments in 1971-72 was of the order of Rs. 60.50 million as against Rs. 14.22 million in the previous year. Anaesthetics, blood pressure instruments, hollow needles for injection, stethoscope, surgical chisels, forceps, clips, knives and scissors, surgical suture needles, etc. are among the surgical instruments that are regularly exported abroad.

The State owned, Indian Drugs and Pharmaceuticals Limited (IDPL), N-12, South Extension Area Part I, New Delhi-49, has just entered into an agreement with M/s. Medexport, Moscow, for the supply of 500,000 surgical instruments worth Rs. 4.5 million to the Soviet Union in the first nine months of 1973. This is the third in the series of such contracts signed with the Soviet Union under the current Five Year Trade Agreement. The recent contract was signed at the IDPL Pavilion in the Third Asian International Trade Fair, which is currently on in New Delhi.

In 1971, the Indian firm supplied 565,300 instruments worth Rs. 4.23 million. In 1972, the contract is for the supply of 70,320 instruments at a value of Rs. 5.78 million of which supplies of 59,830 instruments worth Rs. 4.78 million have already been effected. The Soviet Union is expected to place a further order worth Rs. 2 million in 1973.

The IDPL plant built with Soviet assistance, had earlier supplied its surgical instruments to Uganda, Burma, Sri Lanka, Sudan, Arab Republic of Egypt, West Germany, Belgium, Jordan and Kenya.

The firm's production has been improving year after year. It was Rs. 1.6 million in 1969-70 and Rs. 4.6 million in 1971-72. It is estimated that the plant's production will cross Rs. 8 million in 1972-73.

GUJARAT CORPORATION'S EXPORT PROGRESS

From an estimated export value of about Rs. 600 million five years ago, the Gujarat Export Corporation has succeeded in pushing up its export trade to the level of about Rs. 900 million now. Earlier, the Corporation was engaged in the overseas supply of traditional products like oil extraction, groundnuts, textiles and diamonds. Today, its export range covers such new products as diesel engines, pumps, machine tools, steel tubes, pipe fittings, textile machinery, chemicals, handicrafts and processed foods. Also, the Corporation has popularised abroad the machine tools from Jamnagar, handicrafts from Kutch, diesel engines from Rajkot, textile machinery from Ahmedabad and also pickers from Mehsana, guar gum from Punch Mahal, diamonds and zari from Surat, mango juice from Bulsar, etc.

The Corporation's exports cover more than 100 different kinds of commodities to 46 countries of the world including U.S.A., U.K., and the continent of Europe, New Zealand, Australia, Thailand, Malaysia, Singapore, Iran and Iraq.

FERTILIZER KNOW-HOW TO SRI LANKA

At the request of the Sri Lanka Government, the Gujarat State Fertilizers Company Limited, Baroda, has offered its engineering services for setting up a fertiliser plant.

The Company produces about one-fifth of the total nitrogenous content of all indigenously manufactured fertilisers. It also produces urea and amonium sulphate in substantial quantities.

The firm's success in creating giant fertilisers complex has prompted it to enter into the petro-chemical field also. It has undertaken the manufacture of caprolactum also, which is the raw material for nylon yarn; the yarn is currently being imported. The caprolactum plant is to annually produce 20,000 tonnes thereby saving substantial foreign exchange. It will also annually produce 8000 tonnes of amonium sulphate fertilizer as a co-product.

EXPORT ORDERS FOR ENGINEERING GOODS

The Trade Development Authority, Bank of Baroda Building, New Delhi-1, have secured export orders worth Rs. 5.45 million from U.S.A. and Sweden even in the first week of the Third Asian Trade Fair.

The U.S.A. finalised a deal for the purchase of bicycle chains worth Rs. 2.5 million from India. A large U.S. department store one of the biggest buyers of fencing components, placed a trial order worth Rs. 750,000 with an Indian firm for the purchase of tension bars. After successful execution of this trial order, a bigger contract from this store is expected for fencing components.

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A Swedish Mission which visited India at the invitation of the Authority, placed an order worth Rs. 2.2 million for supply of home-furnishing items. The Swedish Mission felt that their organisation should send a textile designer to India to learn new designs as India is extremely advanced in this field.

INDIAN BICYCLES TO U.S.A.

The export performance of bicycle industry in India has been improving from year to year. The country today occupies the fith place among the bicycle producing countries in the world. The export of bicycle parts and accessories during 1971-72 was of the order of about Rs. 80 million as compared to Rs. 70.67 million during 1970-71. This represents an increase of about 15 per cent.

During 1971-72, the major destinations for the Indian bicycles included Nigeria, Iran, Indonesia, Iraq, Zambia, U.S.A. and Singapore. For Bicycle parts and accessories, UK, Yugoslavia, Belgium, USA, Federal Republic of Germany, Japan, Denmark and Belgium emerged as the principal markets.

Adding to the export effort, the Projects and Equipment Corporation of India, a subsidiary of the State Trading Corporation of India, have lately entered into an agreement with Indo-Vision Enterprises, New York, at the "ASIA 72" Fair in New Delhi for the supply of 40,000 3-speed gear cycles to U.S.A. The supply will be completed over a period of thirteen months at the rate of 3000 cycles per month. The completion of the order will earn the country foreign exchange worth Rs. 10 million.

Alongwith increasing exports, the production of bicycles in India has registered a cent per cent increase in the last decade. From 1.05 million bicycles in 1961, the output rose to 1.93 million numbers in 1969 and 2.10 million numbers in 1970. For the Fourth Plan a target of 2.7 million bicycles is envisaged for the organised sector. Currently, there are ten units in the line with an installed capacity of 3.33 million bicycles.

The production of bicycle parts and components and accessories has also kept pace with that of complete bicycles. The value of production which stood hardly at Rs. 10 million in 1951 shot upto Rs. 99.2 million in 1969, Rs. 102.56 million in 1970 and Rs. 105.3 million in 1971.

The growth of the industry has been balanced quantitatively and qualitatively. All the important bicycle units in the country are equipped with modern machines and automatic plants and employ mass production techniques. Bicycles intended for overseas markets are subjected to strict compulsory quality control to ensure that no sub-standard products are exported.

BOOST IN EXPORT OF COTTON MANUFACTURES

India's exports of cotton manufactures are constantly picking up overseas demand. In 1971-72, the cotton manufactures (excluding yarn, thread and clothing) earned foreign exchange to the tune of Rs. 1000 million as against Rs. 975 million worth exported during the preceding year.

In the range of cotton manufactures, mill-made piecegoods is the major category of export having netted foreign exchange worth Rs. 674.68 million, accounting for more than 65 per cent of the total export value of the entire group. A wide range of items were exported in this category such as dhoties, lungies, sarees, shirtings, coloured bleeding Madras, coloured real Madras, handkerchiefs, bedtickings, furnishing cloth, longcloth, parachute cloth, sheeting card yarn and combed yarn, shirting card yarn, twill satin card yarn and combed yarn, umbrella cloth, cotton gauze, terry fabrics, mulls, muslin, poplin broadcloth, voils, flannelitte, coating suiting, sarees handprinted and other cotton fabrics handprinted, other woven cotton fabrics, other knitted fabrics, tule lace embriodery ribbons, trimmings and other small wares of cotton and related products, wicks, gas mantle fabrics, bags and sacks for packing, tarpaulins tents, travelling blankets, rugs, cotton waste blankets, bed sheets, handloom napkins, pillow cases, table cloth covers, handloom towels, curtain cloth, made up mosquito nets, floor covering, tapestries of cotton, handloom and knotted carpets, handloom durries etc.

The principal importing countries for these items were U.S.A., U.K., U.S.S.R., Australia, France, Federal Republic of Germany, Canada, Nepal, Sudan, Sri Lanka etc.

Next to mill-made piecegoods, the important category of export was the made up articles of cotton which earned Rs. 186.75 million in 1971-72. U.K., U.S.A., Nigeria, Muscat, Kenya, Sudan, Federal Republic of Germany, Denmark, Australia, Zambia, Sweden, U.S.S R., Canada, New Zealand etc. were the prominent destinations. Handloom piecegoods fetched Rs. 99.54 million and these were mainly absorbed by U.K., Nigeria, U.S.A. Sweden, France, Singapore, Federal Republic of Germany, Denmark, Nepal and Japan.

Besides these main categories, other woven cotton fabrics (excluding narrow or special fabrics) earned foreign exchange to a level of Rs. 11.06 million while special fabrics of cotton and related products netted Rs. 10.38 million. Tule lace embroidery ribbon trimmings and other small wares of cotton earned Rs. 9.07 million while floor coverings and tapesteries of cotton brought in Rs. 8.96 million.

One of the firms engaged in the manufacture of a wide range of cotton textiles of grey, bleached, dyed and finished sorts in coarse, medium and fine varieties drills, crepes, longcloths, shirtings etc., M/s. Anglo-French Textiles Limited, Cuddalore Road, Mudaliarpeth, Pondicherry-4, is an important exporter. Its export performance was Rs. 49.1 million in the year 1971. Its exports rose to this level from Rs. 22.4 million in 1967 registering more than 100 per cent increase.

EXPORT PERFORMANCE AND POTENTIAL

HANDLOOM PRODUCT EXPORTS BRIGHTER

Compared to a value of Rs. 261.35 million in 1970-71, exports of handloom products fetched Rs. 300 million in 1971-72.

Exports of cotton handloom products were up at Rs. 227 million as compared to Rs. 159.22 million. Of this, fabrics netted Rs. 100 million against Rs. 78 million; non-fabrics Rs. 67 million against Rs. 55 million and ready-made garments Rs. 59 million against Rs. 26 million.

Silk handlooms in 1971-72, fetched Rs. 71.50 million. The share of mulberry silk handlooms was Rs. 58.50 million and that of tussar silk Rs. 13 million. The silk handloom export earning in the previous year was Rs. 100 million. Woollen handloom exports brightened too in 1971-72 at Rs. 2.14 million as against Rs. 1.40 million.

Among manufactured handloom items, readymade garments registered the largest rise in export trade to the level of Rs. 59.42 million in 1971-72 against Rs. 21.93 million in 1970-71 and Rs. 12 million in 1969-70. Bedsheets and blankets are also active in export trade. Their export value grew from Rs. 21 million in 1969-70 to Rs. 26.9 million and Rs. 37.21 million in the following two years. Real Madras handkerchiefs have picked up in foreign demand from Rs. 15 million and odd in 1969-70 to Rs. 21 million and Rs. 29.5 million in the subsequent years. Towels and napkins constitute another area of export growth - from Rs. 7.72 million to Rs. 15.45 million and Rs. 16.51 million. Bleeding Madras fabrics hardly earned Rs. 0.11 million in 1969-70 but their exports rose in the following two years to Rs. 0.3 million and Rs. 1.11 million. In respect of handloom shirtings also, the export trade has been fairly improving from Rs. 0.5 million to Rs. 1.81 million and Rs. 3.6 million in the years that followed. Exports of specific varieties like crepes and seer sucker in running lengths have also shown substantial increases. Their export earning was only Rs. 13.6 million in 1969-70, and Rs. 18.21 million in 1970-71, which rose to Rs. 37.68 million in the following year.

Among the traditional markets, Malaysia absorbed Rs. 14.92 million worth of handloom products, followed by Singapore at Rs. 14.38 million, Nigeria Rs. 14.12 million, Sudan Rs. 7.45 million, Dahomey Rs. 7.27 million and Seirra Leone Rs. 7.02 million (1971-72). Cotton handlooms were the most important in their import trade. Malaysia, for instance, absorbed as much as Rs. 9.46 million worth of cotton handlooms as against Rs. 5.46 million worth of silk and other products. Singapore and Nigeria imported Rs. 13.98 million each worth of cottons. Next to Malaysia, Kenya proved to be the important market for handlooms other than cotton at Rs. 2.75 million (its import of cottons were Rs. 1.10 million).

Among the non-traditional markets, U.S.A. was the outstanding importer; its imports in 1971-72 were Rs. 39 million - Rs. 32.56 million of cotton handlooms and Rs. 6.4 million worth of other handlooms. Next in importance was West Germany whose import of cotton handlooms was Rs. 12.6 million and silk and other material Rs. 11.6 million in 1971-72. The U.K. market absorbed Rs. 27.78 million worth of cottons and Rs. 3.85 million worth of other handlooms. Imports of France were of the order of Rs. 8.96 million for cottons and Rs. 6.16 million for the rest. Japanese purchases recorded Rs. 4.17 million worth of cottons and Rs. 4.33 million for other handlooms.

Exports to Italy, Belgium and Netherlands are also on the increase among the European Common Market economies. The imports in East-European regions were of the order of Rs. 4.17 million (Rs. 3.18 million for cotton and Rs. 1 million for the rest), of which Yugoslav purchases were Rs. 2 million (Rs. 1 million for cottons and the rest for other handlooms). Among the Nordic countries, Sweden improved its offtake worth Rs. 24 million of cotton and Rs. 2.25 million worth of other handlooms. Exports to Denmark and Finland also showed a sign of improvement. In all, exports of cotton handloom items particularly to ECM countries, U. K. as also to U.S.A. have registered sizeable increase.

During the first 5 months of 1972-73, exports of real Madras handkerchiefs, cotton handloom sarees and cotton handloom readymade garments registered increase.

EXPORT POSITION OF SPICES

Popular as the home of quality spices, India not only accounts for a major share in the total world spices production, but also its external trade. Two-fifths of world black pepper, over two-thirds of cardamom, four-fifths of turmeric, three-fifths of chillies and half of ginger emerge from India. Besides, a wide range of minor spices are also produced in the country in sizeable quantities.

The overall export earning of spices in 1971-72 was of the order of Rs. 361.75 million. Black pepper commanded the major share at Rs. 148.25 million. Garbled black pepper is the most important export variety (Rs. 141.65 million). U.S.S.R. alone purchased worth Rs. 71.21 million. Import by Poland amounted to Rs. 9.97 million. U.S. purchases were of the order of Rs. 8.59 million while Yugoslavia bought worth Rs. 8.84 million. Italy, Hungary, Chechoslovakia, Rumania, Canada and Bulgaria were the other major markets. Light black pepper and pinheads were mainly bought by Sudan and Canada.

Export of chillies in the year amounted to Rs. 19.22 million. Sri Lanka absorbed the bulk (Rs. 12.21 million). U.S.A. and U.S.S.R. imported worth Rs. 3.8 million and Rs. 1.2 million respectively.

Cardamom is another important line of overseas supply. Its export value was Rs. 81.97 million. Of this, small cardamom (Alleppy green) fetched over Rs. 66 million. Saudi Arabia was the most important purchaser at Rs. 23.78 million. Kuwait was an equally important market at Rs. 22.83 million. Other leading purchasers were Bahrein Islands, Japan, Qatar, South Yemen People's Republic and U.S.S.R. The other varieties of cardamom available for export are the large cardamom (its export value in 1971-72 was Rs. 1.67 million), Coorg green small cardamom (Rs. 4.67 million), bleached cardamom (Rs. 5.86 million), small seed cardamom (Rs. 1.76 million), etc.

India's curry powder is another popular item in the cuisine at home and abroad. Its export value amounted to Rs. 7 million, U.K. being the leading buyer (Rs. 3 million). Australia, Canada, Belgium, Denmark, Fiji Islands, German Federal Republic, Kenya, Kuwait, Netherlands and the U.SA., were the other important purchasers.

Saudi Arabia is the foremost importer of Indian ginger at Rs. 8 million. The total foreign exchange earned by the item in the year 1971-72 was Rs. 27.53 million. South Yemen People's Republic, U.S.A., Yemen Arab Republic, Morocco and Iran were the other important buyers.

Turmeric is yet another active foreign exchange earner for India. Its export value in the year was Rs. 29 million. Iran absorbed worth Rs. 7 million, U.S.A. Rs. 4.73 million, Libya Rs. 1.73 million, Singapore Rs. 1.79 million, U.K. Rs. 1.66 million and Sri Lanka Rs. 1.49 million.

Among other spices, cumin seeds were exported to the tune of Rs. 23.58 million. Singapore absorbed as much as Rs. 7.7 million. Nepal, Sri Lanka, U.S.A. and U.K. were the other major importers.

Among minor spices, India offers aniseed, corriandar seed, fennel seed, celery seed, fenugreek seed, saffron, tejpat, etc.

India's total annual turnover of spices is estimated at 800,000 tonnes. The export success of this industry is mainly due to the compulsory quality control and gradation organised by the Indian Government which, indeed, ensures the quality of the export products. Technological research on the various aspects of the spices industry is undertaken by the Central Food and Technological Research Institute, Mysore, which has evolved quite a few research processes for improving the quality and end-uses of the spices grown in the country.

EXPORT BUSINESS FROM KANDLA PORT

The year 1971-72 witnessed improvement in the external commerce effected by the Kandla Free Trade Zone. The Zone's export value was Rs. 0.23 million and imports Rs. 1.80 million, while the figures for the preceding year were Rs. 0.14 million and Rs. 1.47 million.

Since the commissioning of the Cargo Jetty Berths in 1957, it has handled substantial external trade. Exports of Assam tea which moves through Kandla during the last three years were well received by the importers in the U.K., and the Continent. Similarly, the Port's handling of external commerce gave a good account. The State Trading Corporation of India is currently considering the installation of a salt loading mechanical plant for the export of salt. After the commissioning of the plant, it is expected that between 0.3 million and 0.5 million tonnes of salt can be exported annually. A mechanical unloading plant for fertilisers and its raw materials is also to be installed which is to finally unload cargo at the rate of 10,000 tonnes per annum. It is planned that the Port will double the quantity of its present import of petroleum and chemicals.

Apart from the potential of agricultural development and the development of allied industries like animal husbandary and sheep breeding, the hinterland of Kandla possesses rich promise for the development of mineral resources. The geological surveys conducted in the region estimate deposits of lignite at about 155 million tonnes, sufficient for the installation of a 100 Megawatt thermal power house. Among other minerals that abound in the region are limestone of various grades.

INDO-YUGOSLAV TRADE AGREEMENT

India and Yugoslavia have recently reached an accord providing for continued trade relations on the basis of payment in convertible currency. The accord will replace an old agreement concluded in October, 1962, the validity of which was extended from time to time up to the end of 1972. From January 1, 1973, all trade and payment transactions, between the two countries will be in freely convertible currency, unless specifically provided otherwise.

India's exports to Yugoslavia during 1972 are estimated to be of the order of Rs. 170 million. Yugoslavia's exports to India in the same year were approximately of Rs. 120 million.

Arising out of the proposed introduction of convertible currency payment system in their trade relations from January 1, 1973, both sides agreed within the framework of GATT regulations that they should accord to each other the most favoured nation's treatment and give preference to mutual trade. It was also agreed that in terms of convertible currency trading, all possible steps would be taken not only to sustain the present level of trade but for further expanding the same.

Among the measures recommended by both sides for this purpose are: exchange of commercial information between Chambers of Commerce of both countries, exchange of trade delegations, promotion of direct contacts between the commercial communities of the two countries, participation in International Fairs, expansion of "Common List" items under the Tripartite Cooperation Agreement, continuance of Indo-Yugoslav Joint Committee within the new framework and establishment of joint ventures in both countries and in third countries.

CASHEW EXPORTS IMPROVE

Exports of cashew kernels from India in the first three quarters of 1972 (January-September) amounted to 47,725 tonnes valued at Rs. 496.4 million. This is about 10 per cent more than the exports for the corresponding period in the previous year.

A major upswing in the offtake by the Soviet Union was responsible for the rise in the export earning. Their imports rose from 10,580 tonnes to 18,785 tonnes. In terms of value, their offtake improved from Rs. 100.47 million to Rs. 186.15 million. Imports by Canada, U.K., Japan and Australia also rose. But the U.S. purchases fell from 21,720 tonnes to 14,320 tonnes (from Rs. 229 million to Rs. 186 million).

Exports of cashew nut shell liquid in the period reviewed amounted to only 3325 tonnes valued at Rs. 3.84 million. U.K and Japan were the major importers for this item during 1971-72.

Imports of raw cashew nuts into India in the first half of 1972 amounted to 146 268 tonnes valued at Rs. 236.6 million compared to 124,163 tonnes valued at Rs. 200 million in the corresponding period of the previous year.

EXPORT CONTRACT FROM PLOVDIV FAIR

Indian business firms that participated in the Plovdiv international fair (Bulgaria) have signed contracts worth Rs. 43.2 million with Bulgarian business organisations. The largest export order was for leather goods, followed by engineering products. The Indian pavilion at the Fair received gold medal for excellence in display. Apart from the firm orders contracted for, business worth Rs. 16 million is stated to be under negotiation. The Indian participation in the Fair was arranged by the Indian Council of Trade Fairs and Exhibitions, Bombay.

TEXTILE EXPORT CORPORATION

The Government of India have recently approved a proposal by the Ministry of Foreign Trade to set up a Textile Corporation which is to start functioning from December 1, 1972. The Government have also decided to nationalise textile export trade due to failure of the trade and industry to utilise its export potential fully.

The export of mill-made cloth, to which the present decision of nationalisation would apply, was of the value of Rs. 650 million during January-June 1972. The exports are to be taken over by the new Corporation in a phased manner so as to cause the least dislocation of the existing exports.

EXPORT OF OILSEED CAKES AND MEAL

During 1971-72, India exported 741,703 tonnes of oilseed cakes and meal valued at Rs. 401.48 million.

Among the oil cakes exported during the year, solvent extracted groundnut oil cake was the most important one accounting for nearly 85 per cent of the total export value of oilseed cakes. This important variety earned as much as Rs. 340.87 million in foreign exchange. Quantitatively the export amounted to 603,763 tonnes. Japan with an intake of 120,108 tonnes, valued at Rs. 64.36 million was the major buyer. The second important purchaser for the item was Hungary which imported 88,813 tonnes, valued at Rs. 49.15 million, followed by Poland at 82,383 tonnes (Rs. 47.71 million), German Democratic Republic 79,869 tonnes (Rs. 44.80 million), U.K. 63,229 tonnes (Rs. 37 million), U.S.S.R. 58,834 tonnes (Rs. 34.42 million), Czechoslovakia 33,565 tonnes (Rs. 19.89 million) and Yugoslavia

19,074 tonnes (Rs. 11.30 million). Bulgaria, Singapore, Rumania, Thailand, Lebanon, German Federal Republic were the other important importers.

Next to groundnut oilcake, decorticated solvent extracted cottonseed oil cake, and linseed oil cake were the other important varieties, contributing to the total export earning of oil cakes/meals. These varieties earned Rs. 32.14 million and Rs. 9.80 million respectively. In order of the value of exports effected, Czechoslovakia, Poland, Yugoslavia, Bulgaria and German Democratic Republic were the important destinations for solvent extract cotton seed oil cake, while Japan, Poland and Czechoslovakia were the major importers for solvent extracted linseed oil cake.

The contribution of other important oil cakes to the total export earning was solvent extracted kardi oil cake Rs. 9.66 million; decorticated expeller cotton seed oil cake Rs. 2.26 million and solvent extracted sesamum oil cake Rs. 1.84 million.

UPTREND IN OFFICE MACHINE EXPORTS

The export earning of Indian office machines and parts improved by Rs. 1.88 million to Rs. 21.45 million in 1971-72 as compared to Rs. 19.57 million in 1970-71.

Among the various office machines, statistical machines alone including punchers, verifiers, collators, sorters, reproducers, and tabulators etc. accounted for an increase of Rs. 1.75 million in 1971-72. The export earning of these machines was up at Rs. 18.73 million as against Rs. 16.98 million in 1970-71. France with an intake worth Rs. 6.75 million was the major buyer for statistical machines during 1971-72. U.K. was the second leading buyer at Rs. 2.82 million, followed by Italy at Rs. 1.34 million and Australia at Rs. 1.12 million. German Federal Republic, Netherlands, Belgium, Sri Lanka, Indonesia, Korea Republic, Newzealand and Philippines were the other important buying countries.

The export value of manually operated calculating machines also registered appreciable improvement from mere Rs. 2889 in 1970-71 to Rs. 553,014 in 1971-72.

The exports of typewriters, however, declined marginally to Rs. 838,821 in 1971-72 from Rs. 941,944 in the previous year. Similarly, the overseas supplies of duplicating machines were lower at Rs. 430,122 as compared to Rs. 920,059 in 1970-71.

As regards office machine parts, there was again an improvement from Rs. 441,391 in 1970-71 to Rs. 886,230 in 1971-72. U.K., Australia, Sudan and Thailand were the prominent destinations for these parts.

Among the various office machines, the production of typewriters and duplicators in 1971 stood at 43,692 numbers and 4615 numbers respectively. The output of data processing machines in 1971 was 5315 numbers valued at Rs. 41.40 million while its installed capacity was 14,630 numbers in the same year.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

COLOMBO PLAN CONSULTATIVE COMMITTEE MEETS

The Twenty Second meeting of the Consultative Committee of the Colombo Plan was inaugurated by India's Prime Minister. The Colombo Plan, which has completed 20 years, represents a joint attempt of countries with differing systems to help one another in the fight against economic backwardness. The Prime Minister in her inaugural address stated that India had all along valued the membership of the Colombo Plan and had actually participated in its working. The member-countries had been benefitted and also had been able to contribute "to the programme of the Plan and to share their experiences and skills with other countries of the region." "Undoubtedly", Mrs. Gandhi said, "every one of our countries can point to impresssive advance in terms of the use of natural resources, the construction of dams, power houses, factories, roads, and railways, and schools built and deaths prevented. *In our own country, we have been able to double our agricultural production and have begun* *manufacturing and building a wide range of industrial equipment, from sophisticated transistor tubes to power generators and supersonic aircrafts. The life-span in India has increased by nearly 25 years. The mumber of children at school had gone up (in the last 25 years) from 23 million to 83 million.* In fact, all the countries of Asia are today producing commodities which most of them would have had to import from the West only 20 years ago."

Referring to the size and diversity of India, the Prime Minister stated that these would add to the complexity of problems. "The smallest change at field level involves huge expenditure and effort at the national level. A single extra book for a primary school means the supply of several hundreds of thousand of copies : and they have to be in fifteen languages. We are now working on the outlines of our Fifth Five Year Plan. The expenditure we envisage is Rs. 510,000 million—this is an impressive figure, yet it works out at only Rs. 170 per head per year. This gives some idea of the scale of effort required to make modest gains available to our people. Other developing countries are probably in a more or less similar situation."

Enduring growth among developing countries can be sustained only on internal strength. The flow of aid is not to continue as "long as we wish it or perhaps even need it. Already there is a climate of aid-weariness. The reduction of dependence on external resources is inescapable." But self-reliance does not mean a lessening of international cooperation. On the contrary, such cooperation should increase. Affluent countries could help to remove existing impediments to the efforts of developing countries to help themselves - impediments some of which have been placed across the path of the developing countries by the present pattern of world trade. Added to the economic hazards such a fluctuating prices and inelastic demand for their exports, adverse terms of trade and limited access to developed markets, there is one more factor now, namely, the international monetary instability.

"There are more experiences and situations common to the nations of this region (Asia) than they have with the advanced countries of Europe and America. They would gain much by pooling their own skills and expertise in many fields and helping one another," stated the Prime Minister.

On the question of indebtedness of developing countries, the Economic Affairs Secretry to the Government of India said, "When you have debt and debt services which grow at the rate of 14 per cent per annum, the export earnings can hardly be expected to increase more than, say six or seven per cent per annum." Debt service repayment would be increasingly absorbed in larger and larger proportions of export earnings. Citing the example of India, he said, "It is only a very short period since 1958 that we have started borrowing abroad in a significant manner and yet by about 1968-69, we had already reached the situation that something of the order of 30 per cent of our export earnings had to be devoted to the repayment of debt, both amortisation and interest charges. Presently more than three-fourths of the aid received by India in a given year is given back in terms of repayment. We get about 800 million dollars of aid and our repayments are already of the order of 625 million dollars."

The terms and quantum of aid also pose problems. "Let us say a country gets 100 million dollars of aid. If the net transfer of $ 100 million is to be maintained, the debt begins to mount up; you will have to negotiate every year over 100 million dollars worth of aid; the next year it will be still more and the year after it will be still more. In other words, if there is to be no debt relief and if debt repayments are to be made on schedule, and since debt payment including interest payment will mount up from year to year, you will have to mobilise more aid from year to year". Already there is a degree of disenchantment on the part of the donor countries regarding the quantum of aid that can be mobilised from year to year. When the international goodwill is not of an order that new aid mobilisation can increase significantly, then the net transfer of resources will decline sharply unless some solution can be found about the debt problem itself. This indeed is one of the reasons why the problem of debt became so urgent for countries like India. For the last several years the level of gross aid to India has not only remained static; it, in fact, has come down and it comes down almost every year with the result that one cannot possibly maintain even the minimal net transfer of resources of about $ 200 million, unless a solution is found on the debt side.

Mr. I.G. Patel, the Economic Affairs Secretary referred to the equity aspect which was as important as the need aspect of the foreign loans. Practically, all the bilateral aid is tied. "You have got to use it in the country from which you get the aid and and you have to use it for the purposes which are prescribed from time to time." On the other hand, repayments, at least to the Western countries are not tied. They have to be made in free foreign exchange. This aid, prima facie, is not equitable because the dollar you get in terms of aid or a pound you get or a mark you get or a franc you get in terms of aid that you get because it is tied, is worth less than the dollar you have to earn and franc or pound you have to earn in order to make repayment of one dollar or one pound or one mark. This is the situation which has to be corrected sooner or later. There has to be an element of debt adjustment—debt reduction in the process of debt relief.

The Indian representative mentioned that of all the concessional forms of aid, that which carries no rate of interest could be regarded as the most desirable because it would avoid the arithmatical monster of having to borrow more and more every year in order to maintain the same set of resources. Again if in principle it can be accepted that loans in future should be interest-free, there should not be any reason why loans in the past should not be interest-free too. Further what is important would be a genuine reduction in the burden of debts and not merely a postponement of debt. The arrangements for debt relief from year to year are not satisfactory. "One of the major difficulties about the aid has been that the promise that it would be given in advance over a fairly long period to enable a country to plan has never been fulfilled. If there is to be real (debt) relief, the arrangement must extend over a fairly long period of at least three to five years and not on year to year basis."

Another point made by Dr. Patel relates to the fact that a reluctance to consider measures towards debt reduction might result in unilateral moratoria. "If the burden becomes intolerable, people will throw it off." As an example he cited the case of the United States which is refusing now to honour its external liabilities by refusing to go back to dollar convertibility. He suggests that creditor nations should not fuss over the precise burden sharing formula in any scheme of debt reduction and thereby elay the relief. U.S.A., for instance, have argued that they were expected to bear too large a share of the Indian debt rescheduling, despite the favourable terms of lending. But since U.S. tied aid is costlier than say Japanese tied aid, the argument is not valid. The comparison of aid connot be confined to terms of lending.

DRY AND STORAGE BATTERY INDUSTRIES

The dry battery and storage battery industries are fairly developed in India and their production has been growing rapidly. In the dry battery industry the total licensed capacity is of the order of 905 million numbers per annum. Actual production in 1971 was of the order of Rs. 276.12 million (580 million cells).

Steps are being taken to manufacture raw materials for the dry battery industry such as acetylene black, electrolytic manganese dioxide etc. Production capacity has also been created for the manufacture of carbon rods. Zinc and manganese ore, however, continue to be imported.

The storage battery industry includes a wide variety such as automotive, traction, stationary air-craft, telephone and railway lighting and locomotive batteries. All these are being manufactured indigenously. For the first time, a firm is coming into active production for submarine batteries also. The actual production of storage batteries in 1971 was of the order of 1.16 million numbers valued at Rs. 191.68 million.

Batteries and accumulators have been earning substantial foreign exchange. Their export value in 1971-72 totalled Rs. 25.57 million. Flash light batteries and other dry cell primary batteries contributed Rs. 11.3 million. Sudan was the most important market for flash light batteries (Rs. 2.06 million). The same market absorbed nearly half of the other dry cell primary battery exports which amounted to Rs. 8.6 million. Nepal, USSR, Malaysia and German Federal Republic were the other important buyers. The German Democratic Republic, USSR, Iraq and Sri Lanka were the principal importers of wet cell primary batteries whose export earning in the year was Rs. 2.06 million. Accumulators were exported to the tune of Rs. 11.15 million. U.S.S.R. was the leading market.

DRILLING EQUIPMENT INDUSTRY

Practically all the major types of drilling equipment such as diamond core drills, calyx type drills, light, medium and heavy percussion drills, medium and heavy direct rotary drills, rotary cum percussion drills, medium and heavy reverse circulation drills, down-the-hole air percussion drills and electric coal drills are being manufactured in India. Drilling rigs for geological prospecting as well as for tube-wells are now being manufactured indigenously. Presently there are 11 firms in the private sector licensed to manufacture various types of drilling equipment including electric coal drills with an annual capacity of Rs. 52 million. Another unit licensed for the manufacture of well drilling rigs is expected to go into production shortly. Additionally, M/s. Heavy Engineering Corporation, Ranchi in the public sector also manufacture drilling equipment required for well drilling as well as oil drilling operations. Actual production of the private units in 1971 was of the order of Rs. 17.6 million. Some of the firms engaged in the manufacture of drilling rigs are also in a position to manufacture accessories for various types of drills.

Earth drilling machinery are already being exported from India. In 1971-72 the export value of rock drilling machinery amounted to Rs. 0.66 million. Sri Lanka, Nigeria and Thailand were the important markets. Also Thailand imported some quantity of tube well drilling and coal drilling machinery.

SPOTLIGHT ON TEXTILE MACHINERY INDUSTRY

India's textile machinery industry is capable of manufacturing the entire range of spinning, weaving and processing machines. The manufacture of combers is the only exception but production in this line also is to commence very shortly.

The licensed capacity of the industry is of the order of Rs. 670 million while the installed capacity is about Rs. 450 million. The actual production in 1971 was at the level of Rs. 351 million. The annual output has registered gradual uptrend over the years-from Rs. 151 million in 1968, Rs. 199 million in 1969 and Rs. 302 million in 1970. The development of the industry has been mainly due to the conscious policy followed by Government to restrict imports of textile machines.

The present range of spinning and weaving textile machinery indigenously manufactured in substantial quantities includes blow room lines, carding engines, draw frames, speed frames, ring frames (cotton), doubling ring frames, combined bobbines, woollen ring spinning frames, woollen preparatory (Gill Boxes), worsted ring spinning frames, ring twisting frames (art silk), reeling machines, bundling press, fibre cutting machinery, rag tearing and pulling machinery, cross roll varga high production units, winding machines, warping machines, sizing machines, pirn winding machines, plain looms and auto looms for cotton, plain looms for silk and art silk, tape looms and baling press.

Further capacity is being planned to be created for the production of sophisticated machinery under collaboration with reputed foreign manufacturers. Within a couple of years, several new items of machinery and testing equipment which are not available indigenously at present will be manufactured. They will include fully automatic single spindle pirn winding machines, fully automatic warp winding machines, super speed warping machines, automatic knotting machines (warp tying machines), auto looms for canvas and corduroy, jet dyeing machines, automatic rotary and screen printing machines and uster evenness test.

With a view to modernising the textile mill industry in the country, old and outmoded machines, presently existing in the mill industry, are sought to be replaced. With the rehabilitation of the machinery structure, the textile industry is expected to be revitalised further.

On the export front, a wide variety of textile machinery is already active. In 1971-72 over Rs. 48.87 million worth of the machinery was supplied abroad. In the export list prominent items included cotton spinning machines, other textile fibre processing machines, knitting machines, healds and reeds for cotton machinery, hosiery needles, weaving machinery, parts and accessories of cotton spinning machinery, shuttles, pirns, cotton textile dyeing machinery, weaving machinery, washing, cleansing and drying machines etc. The most important items of export, however, are cotton spinning ring frames, supplied to Arab Republic of Egypt and Malaysia. Arab Republic of Egypt again was the major importer of cotton spinning ring frames, cotton spinning machines, other textile fibre processing machines and parts of cotton spinning and weaving machinery. Iran and Dubai were the other buyers of cotton spinning machines while German Democratic Republic purchased the bulk of knitting machines.

Sri Lanka was the principal importer of healds and reeds while Hong Kong imported the bulk of hosiery needles.

The Indian textile machinery industry is in a position to offer turnkey jobs for setting up new units abroad.

PROGRESS IN AERONAUTICS

The aeronautic industry in India has taken a firm stride ahead towards self-relinance. Besides achieving a measure of technological capability to build sophiticated aircraft, the industry has been following conscious efforts for minimising the import content in its production range as also exploring possibilities of export trade.

The Hindustan Aeronautics Limited (HAL), Bangalore, have recently for the first time participated in international air show held at Farnborough (U. K.) where the India-built 'Gnat' and the basic jet trainer 'Kiran' drew appreciation from the other participants. This experiment, it is hoped, will help promote exports in the line.

The aircraft and equipment that (HAL) have successfully manufactured includes, besides the 'Gnat', the MIG 21 which became popular both in its strike and interceptor roles and the H.F. 24 which gives effective support to the land forces. Other product range are the 'Krishak', the 'Alouttee' and the overhauled Canberras, Packets and Dakotas.

The turnover of HAL during 1971-72 was of the order of Rs. 700 million for the last two decades. The company produced and delivered to its customers more than 1000 aircrafts of different types ranging from piston engines trainers to supersonic combat aircrafts.

The current activities of the company, spread over its various factories embrace the manufacture of the 'Gnat', MIG 21, FL, Alouette, HS 748 and their associated engines as well as the design, development and production of the HF 24 and its variants, the HGT - 16 and the agricultural aircraft.

For the aircrafts currently under production in India, the foreign exchange content as a percentage of the price of the aircraft varies from about 30 to 35 per cent. Through the efforts of HAL and the research and development organisations of the Ministry of Defence, Government of India, indigenous sources have been established for quite a few raw materials, aircraft general stores and consumables. Further efforts to maximise the indigenous development of materials that are presently being imported are well underway. Also as an effort towards self-reliance, a diversified industrial base is being promoted so as to enable the undertaking of production on a sub-contract basis of thousands of items required by the Aeronautics industry.

RECORD STEEL PRODUCTION

The three plants of M/s. Hindustan Steel Limited have achieved an all-time high record output of saleable steel at 1.36 million tonnes in the first six months of 1972-73 registering an increase of 0.13 million tonnes over the production during the corresponding period of the previous year. Of this, 0.83 million tonnes was produced by Bhilai Steel Plant, 0.33 million tonnes by the Rourkela Plant and 0.19 million tonnes by the Durgapur Plant.

During the period April-September, production of the Bhilai Steel Plant was 0.42 million tonnes in 1964, 0.60 million tonnes in 1968 and 0.83 million tonnes in 1972. The production of Durgapur Steel plant, which was an all time high at 0.36 million tonnes in 1964 reduced, however, to 0.24 million tonnes in 1968 and 0.19 million tonnes in 1972. Similarly, the production of Rourkela Steel Plant which was 0.39 million tonnes in 1965 decreased to 0.36 million tonnes in 1969 and 0.13 million tonnes in 1972.

The combined production of these 3 plants during the period of six months which was recorded at 1.08 million tonnes in 1964, rose to 1.26 million tonnes in 1966 but reduced to 1.19 million tonnes in 1968. It again rose to a level of 1.29 million tonnes in 1969 and after witnessing a marginal fall in 1970 and 1971 reached the record level of 1.36 million tonnes in 1972 (April-September).

This achievement was possible because of multi-pronged drive launched in 1971 to remove the bottlenecks and constraints retarding production. Efforts are being made to maintain the tempo of production during the second half of the current year. A Task Force has been set up in the Ministry of Steel for each steel plant to keep constant watch over the performance of every plant. Besides special emphasis was laid on maintenance of plant and machinery as well as timely availability of materials. The total production of saleable steel of the five integrated steel plants, namely, Bhilai, Rourkela, Durgapur, Tata Iron and Steel Company (TISCO) and Indian Iron and Steel Company (IISCO) in the first six months of 1972-73 (April-September 1972) was of the order of 2.19 million tonnes as against 2.10 million tonnes in the corresponding period of the previous year.

As part of the short–term remedial measures, adequate inspection and repairs of the coke oven plants at the steel plants, are being ensured. Distribution of available coke is being rationalised to prevent shortage of the material from becoming a constraint on steel production. To meet the shortage of coke oven gas selected units in each plant have been converted to fuel oil injection and supplementary fuels are already being used. As a long-term programme, a new coke oven-battery was commissioned at Bhilai in early 1972 and another is being taken up for construction on priority. At Rourkela and Durgapur plants also, the coke oven facilities are being reinforced. The rate of coke consumption is sought to be reduced by the use of sinter in the blast furnaces of the plants. In public sector, Bharat coking coal Ltd. is setting up additiona bee-hive coke oven batteries.

PROMOTIONAL PLANS FOR FERTILIZERS

For the remaining period of the Fourth Five Year Plan, a centrally sponsored fertilizer promotion programme has been drawn up by the Government of India at a cost of Rs. 22 million. Cent per cent supported by the Centre, the plan is to be implemented through the State Departments of Agriculture. In 1972-73, the implementation of the programmes will be initially in 25 selected districts only. In the following year the scheme is to be implemented in additional 45 districts. In the current year (1972-73), priority is to be given under the scheme for the demonstration programme for the use of balanced fertilizers along with micro-nutrients such as zinc.

The programme envisages correcting the present imbalance in the use of fertilizers in different parts of the country. Because of the imbalance in the use of N.P.K., full benefit of the fertilizers is not being reaped by an average farmer. Highest priority is given to correcting this imbalance in the proposed programme. Also promotion in the use of zinc in States, like Punjab, Madhya Pradesh, Haryana, Uttar Pradesh, Bihar, Gujarat and Delhi, will be encouraged to maximise food production. Soil testing is another area that would receive priority under the programme. Presently, there are 80 standard soil testing laboratories. It is proposed to strengthen 70 of these laboratories at a cost of Rs. 4 million during the plan period. At present 2 million soil samples are analysed every year. The scheme will help in increasing the number of samples to 2.5 million by the end of the plan period. Emphasis will also be laid on the use of phosphates in the pulses production.

FOURTH PLAN SHIPPING TARGETS TO BE ACHIEVED

India is to achieve the Fourth Five Year Plan target fixed for its shipping tonnage. The target is 4 million GRT of which 3.5 million GRT is to be operative and the rest to be on order.

In October 1972, the operative shipping tonnage was about 2.59 million GRT with 1.5 million GRT firmly on order. Allowing for an estimated scrapping of 0.22 million GRT, orders for about 0.13 million GRT would have to be placed for achieving the Fourth Plan targets. During October this year, the purchase of two second hand ships of a total of 26,000 GRT have already been approved. Thus, orders have to be placed only for about 0.11 million GRT to fulfil the target of 4 million GRT.

In 1947, India had only 59 ships of 0.19 million GRT. The tonnage at the beginning of the First Plan (1951) was 94 ships of 0.37 million GRT.

MANUFACTURE OF MARINE TURBINES

The Heavy Electricals Limited, Bhopal, have now undertaken the manufacture of marine turbines for propelling Indian Navy's leander class warships. A set of two marine turbines has already been built at the factory and is being currently fitted to the warships at Mazagaon Docks in Bombay.

The manufacture of these turbines is considered to be an important break through in the country's heavy electrical technology. The engineers of the Bhopal factory had undertaken the task of erecting and commissioning Indian-made transformers at Malawi and Malaysia. The company also exported its products to Ghana, Iraq, Kuwait, Singapore and Arab Republic of Egypt.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

CHLOROSCOPE INDIGENOUSLY DEVELOPED

Chloroscope is the residual chlorine testing apparatus used in fields and laboratories. Being a sturdy and handy kit, it can be used with advantage at the water treatment plants and community water supply schemes.

At present, this apparatus is not produced in India and the entire demand is being met through imports. For this reason very few municipalities are using this apparatus. However, with indigenous production of this item, more and more municipalities may use it.

The chloroscopes developed in the Central Public Health Engineering Research Institute, Nagpur, have been tried by some of the health offices of Zila Parishads and some railway authorities. The reports received from them are encouraging and favourable.

Plastic grains, polystyrene, chloroform, xylene, canada balsam, ground glass plates,reagent tubes, samples tubes, filter glasses and chemical colour dyes are the main raw materials needed for the apparatus. All are available in the country.

Electrical grinding and buffing machine, electrical small fret saw machine, injection moulding machine, blow moulding machine, constant temperature hot air incubator-cum-oven, steel dye are some of the essential items of plant and machinery required for the manufacture of chloroscope. The manufacture of these chloroscope can conveniently be taken up by small scale plastic industry.

LEAD SULPHIDE INFRARED DETECTOR

Infrared detectors find application in defence and in scientific and commercial appliances. In defence, they are used in guidance systems for missiles and in secure communication systems. They find use in appliances like fire alarms and intruder alarms. They can also be used for remote temperature measurment and control and in general they can function as a switch in control and automation.

At present, these detectors are not being made in India. In order to avoid their import, the Solidstate Physics Laboratory (SPL), Delhi, have developed a process for their production. The process consists of chemical deposition of lead sulphide film on thoroughly cleaned glass plates. These plates are then heated in air for predetermined periods to give the films the optimum sensitivity. Sensitised plates are then cut to required dimensions and cleaned. Contacts are of gold layer deposit. Tinned copper leads are then soldered on these contacts. Quartz are fixed on the unit cells as a protection for the sensitive area. The cells are then tested and sorted out into various grades. About 20 per cent are found to be of grade A.

Chemicals like thiourea, lead acetate, sodium hydroxide, ammonium sulphide, chromic acid, benzene etc., are required in the process. All the raw materials are available indigenously. The main materials required are quartz plates, glass plates, gold wire, tinned copper wire, epoxy resin etc. which are all available in the country. However, high purity chromium and Indium are to be imported.

Some of the major equipment required are : magnetic stirrer, coating unit, sensitisation furnace, optical bench, D. C. micro volt mater, megaohm meter etc., which are available indigenously. Items of equipment like test bench, preamplifier, wave analyser and monochrometer have, however, to be imported.

IMPROVING THE STRENGTH OF ASBESTOS CEMENT PRODUCTS

Asbestos cement industry in India produces a large quantity of asbestos cement products viz roofing sheets building boards, rain water pipes and accessories. The industry uses, almost entirely imported chrysotile asbestos for this purpose. With the increased industrialization of the country, demand for asbestos cement products for buliding industry is increasing. It is estimated that by 1973-74, the annual requirement of imported chrysotile asbestos for industry will be about 50,000 tonnes. This will require an annual expenditure of foreign exchange to the tune of Rs. 100 million. Asbestos cement products manufactured by using indigenous amphibole asbestos as an antophylites and tremotiles are weak. The Central Building Research Institute (CBRI) Roorkee, has developed a gas curing process for improving the strength of such asbestos cement products. The transverse strength of asbestos cement sheets or bursting pressure of asbestos cement pipes obtained by moulding a mixture chrysotile, amphibole, fibres, normal portland cement and water in conventional ways is increased by curing the moulded articles in a closed gas tight room provided with inlets and outlets.

Adoption of the curing process by asbestos cement industry lowers the overall cost of production through the partial replacement of imported chrysotiles by local amphibole fibres.

The process has been extensively tested in the CBRI Laboratory and has been given a factory trial on asbestos cement pipes in an asbestos cement industry.

In the gas curing process, on additional plant or equipment will be required except the special air light room, the additional raw material needed will only be the gas.

EXPORT POSSIBILITY OF CONSULTANCY SERVICES

With the industrial progress achieved over the years of planning in India, a new class of managerial and technical personnel has come up and a wide range of Indian enterprises are now equipped to render consultancy services in engineering and other sectors of sophisticated manufacture. The services that can be made available include know-how, design and engineering in addition to supply of complete plant and equipment.

Over 52 consultancy engineering firms are now active in providing their services not only within India but even among overseas economies. The services that can be supplied relate to plants for rubber, plastics, chemicals, battery manufacture; civil structurals and building works; architectural plant and equipment, industrial water supply, waste disposal, road building, refrigeration, air-conditioning, urban development, city planning, chemicals and fertilisers, ore handling plants, paper plants, specialised plants for processing agricultural products like oilseeds, rice bran, tea waste, etc., Vanaspati plants, cattle feed plants and protein plants; aluminium fabrication, ACSR/AAC conductor installation and manufacture, thermal power stations, leather tanneries, de-hydration plants, cement plants, sugar plants, petrochemicals, textile machinery, mining metallurgy, petroleum refineries, forest based industries, railways and so on.

Some of the Indian consultancy firms have already won substantial industrial contracts from countries far and near. For instance, Syria placed an order for setting up three steel plants. The same country sought Indian assistance for setting up a newsprint mill. India's National Industrial Development Corporation (INIDC) was approached by Iran for general industrial development work. Such examples can be multiplied.

Also many Indian firms were selected in the face of stiff global competition for undertaking turn-key projects which invariably include consultancy services. For instance, the construction job of power transmission lines in Kuwait, Nigeria and Sudan was entrusted to India. Likewise, Uganda sought Indian help for setting up a complete sugar mill. The Arab Republic of Egypt approached India for a textile mill.

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Indian consultancy services have now come to be recognised abroad for their competence to offer services in several specialised fields such as thermal and hydro-electric power plants, electric transmission and distribution system, fertilizer plants, cement plants, sugar mill machinery, water works, ports and harbours, road construction, railways, construction of bridges and dams, material handling, mining and metallurgy, irrigation and flood control, architecture and town planning, heavy and light engineering projects, etc.

Joint industrial ventures is yet another area by which Indian know-how has been exported far and wide in the world. As many as 145 joint ventures have so far been approved by the Government of India for India's participation in the manufacturing activities abroad, covering a wide range of products, industrial machinery, light engineering products like sewing machines and machine tools, textile mills, paper plants etc.

Certain organisations have come up in India for organising the export trade in consultancy services. M/s. Engineers India Limited, New Delhi, a consultancy organisation in the public sector, has to its credit, effective implementation of quite a few projects abroad and many jobs are on its hand now. These include setting up of a refinery in Iran. They are seeking to set up a refinery in Thailand also. Besides the supply of refinery know-how, they are widening their sphere of activitcy to include technology for setting up plants for the manufacture of fibres, fertilizers, petrochemicals and extraction of non-ferrons metals.

Another public sector consultancy firm viz. M/s. National Industrial Develobment Corporation (NIDC), New Delhi, have been entrusted with the setting up of a scrap smelting and casting plant in Libya. They are also setting up an engineering consultancy firm in Syria, on the model of the unit set up by them in Iran some time back.

The Central Engineering Design Bureau (CEDB), is yet another consultancy export firm. They have received enquiries for technical assistance from over 20 Afro-Asian countries.

Indian Railways provide technical and consultancy services to a number of countries in Asia and Africa. Besides carrying out surveys, feasibility studies in these countries and supply of know-how for modernisation of railways, the Indian Railways have also been exporting equipment for these projects.

A National Committee on Science and Technology has recently been set up by the Indian Government to examine the question of further developing the engineering consultancy services available in India to promote industrial growth.

The Council of Scientific and Industrial Research (CSIR), has recently decided to set up a consortium for providing consultancy services in engineering sector. The Consortium will consist of the Cement Research Institute, New Delhi, the Central Building Research Institute, Roorkee, the Central Health Engineering Research Institute, Nagpur, the Structural Engineering Research Centre, Roorkee, and the Central Road Research Institute, New Delhi. It will cover the entire range of consultancy services like feasibility studies, planning, designing, material engineering, formulation and specifications, drawing up agreements and related documents, tendering and supervising work during execution.

The Indian Consortium for Power Projects Ltd., has been been set up with the objective of taking up contracts in India and abroad for power projects and ancillary services on turnkey basis. The Consortium's operations in recent years included execution of several foreign tenders on turnkey basis for supply, erection and commissioning of plants.

Thus, the Indian firms are well up in providing consultancy services not only within the country, but even make them available for export purposes. The success that they have already achieved, particularly in export market, should bear testimony to their competence in the line and promise for the future. ☐

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HUGE EXPORT ORDER FOR MACHINE TOOLS

M/s. Metalexport of Poland have recently concluded an order with M/s. Hindustan Machine Tools Limited (HMT), Bangalore, for the purchase of 460 machine tools valued at Rs. 18 million.

The order includes sale of 100 Radial Drilling Machines and 100 F. N. 2 Milling Machines valued at Rs. 8.10 million. Another order amounting to Rs. 10 million was for the supply of 150 numbers of Centre Lathes, 40 Radial Drilling Machines, 50 numbers of high speed precision centre lathes type H26 and 20 numbers of Preselector Turret Lathes. Thus both the contracts together amount to Rs. 18.10 million. This is the biggest order received so far by the Bangalore firm.

A delegation from M/s. Metalexport which recently visited India and finalised the above deals also evinced interest in the purchase of products manufactured by HMT's Units at Hyderabad and Pinjore. The Polish Delegation was appreciative of the production facilities, quality control aspects and the final quality of the products manufactured by HMT.

As a result of the various sales promotional efforts, HMT has already succeeded in introducing its products in U.S.A., Canada, Australia, New Zealand and Western Europe. So far, the firm has been concentrating only on the export of established machine tools like lathes, milling machines, radial drilling machines etc. In order to increase their export substantially to these countries, the Bangalore firm has entered into co-operation agreement with American Tool Works Company, Cincinnati and Marwin Machine Tools Ltd., U.K. for the manufacture of supercut lathes, NC controlled lathes and 3 Axis HMT Vertical Machining Centres. These machines have been designed jointly by HMT, ATW and Marwins. The prototypes are built in India at HMT's works. It is hoped that these machines will be supplied to foreign collaborators beginning from September 1973.

The Machine Tools Industry in India has rapidly expanded and diversified its production to meet the specific needs of its customers within the country and abroad. Besides the range of machine tools manufactured in the earlier years, some of the new items whose production has come to be established or is to be established soon include drum type turrets, single spindle and multi-spindle automatics, high precision multi-tool lathes, broaching machines, drilling machines with quick setting arrangements, higher capacity plastic working machines, bigger and diversified types of heat treatment and melting furnaces.

With plants at Bangalore, Pinjore, Kalamassery and Hyderabad, HMT have contributed to more than 50 per cent for the total indigenous production of machine tools. They have set up design facilities in their works. Apart from turrent lathes, hand operated cylinderical grinders, carbide tipped tool grinding and lapping machines and 450 mm high centre lathes, the firm has developed chucking automat, cold chamber, die casting machine, plastic injection moulding machines and jig borers.

India's machine tool industry has come to contribute sizeably to the export trade in engineering products. From Rs. 7.5 million in 1965-66, the export earnings rose to Rs. 28.5 million in 1970-71. The major export products include lathes; boring, broaching, drilling and threading machines; milling, planning, shaping, gear cutting and slotting machines; grinding, lapping, honing, polishing, sawing, and filing machines; metal forming machinery like bending and forming machines, hydraulic presses, rotary shares, punching machines etc.

The directionwise pattern of machine tool exports reveals a fairly diversified trend. Lathes, for instance, are supplied to Australia, Arab Republic of Egypt, Canada, Federal Republic of Germany, Netherlands, New Zealand and U.S.A. The main importers of boring, broaching and threading machines have been Australia, Belgium, Netherlands and Sweden. Milling, planning, shaping, gear cutting and slotting machines have proved to be popular in Australia, New Zealand, Federal Republic of Germany, Malaysia and Netherlands.

COTTON TEXTILES IN EXPORT TRADE

If the export earning during the first half of 1972 (January - June) is any indication, the exports of mill-made cotton textiles from India during 1972 are likely to exceed those of 1971 and 1970. In the first six months of 1972, the exports were of the order of Rs. 655.6 million compared to Rs. 510 million and Rs. 583 million during the corresponding periods of 1971 and 1970 respectively. During the same period, yarn exports amounted to 9.6 million kg. in 1972 as against 6.3 million kg. during the corresponding period of 1971.

Adding to the export effort of the cotton textile industry, one of the manufacturers in the line, the Delhi Cloth Mills Ltd. (D.C.M.), Bara Hindu Rao, Delhi, were able to improve their annual export performance by nearly one and a half times to Rs. 40 million in 1971-72 (July-June) as compared to Rs. 28 million in the same period of the previous year.

The range of cotton products exported by the company includes towels, furnishing fabrics, grey cloths as also cotton yarn. Interestingly, the export destinations of the D.C.M. products include Japan and Hong Kong who are themselves major exporters. In all, the company is exporting their products to about

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50 countries including U.K., U.S.A., U.S.S.R., Canada, Australia, New Zealand, Poland, Czechoslovakia etc.

The firm is one of the participants in the "ASIA 72" Fair currently on in New Delhi. At the Fair, they have already received trade enquiries for their towels from U.K., for yarn from France and for garments from West Germany.

Besides the manufacture of cotton textiles, the D.C.M. group of mills are also producing and exporting some non-traditional items like Rayon tyre cord, stable bleaching powder, P.V.C. etc. To their credit, they have lately developed an electronic calculator, details of which already appeared at page 9 of this weekly, issue No. 42, dated October 14, 1972.

In 1971, production of cloth by the mill industry in India was 3957 million metres as against 4157 million meters in the previous year. On the basis of production during the first five months of 1972, the cloth production during the full year of 1972 is estimated at 4290 million metres which will be an improvement even over the production in 1970. The installed capacity of cotton textile industry at the end of May 1972 was 18.36 million spindles and 208,000 looms. There were 684 cotton textile mills – 394 spinning and 200 composite.

MICA SUPPLY TO G.D.R.

The Minerals and Metals Trading Corporation (MMTC) of India has recently concluded a contract with Bergbanhandel of German Democratic Republic for the supply of mica worth Rs. 30 million. This is the first long-term deal of its kind since the export of mica was canalised through MMTC. The contract was signed at the MMTC Pavilion at "ASIA 72" Fair, inaugurated in New Delhi, early this month.

Nearly 70 per cent of the world demand for mica is met by India. During 1971-72, the export value of mica including splittings and waste was of the order of Rs. 153.82 registering a marginal improvement over the export performance at Rs. 153.60 million in 1970-71. Quantitatively, however, the export during 1971-72 was 22.75 million kg. as against 26.6 million kg. in the previous year, showing an improvement in the unit value. The greater part of the world supply of block mica of large size and high quality is produced by the Bihar mica belt in the country.

Mica blocks are available for export in different categories - Andhra Ruby fine and spotted; Bihar and Rajasthan super-fine, clear and slightly stained, fair stained, heavy stained and spotted. Major export variety is the Bihar and Rajasthan good stained blocks. Besides the blocks, mica is exported in the form of condensor of films, book form splittings and various other quality splittings. It is also exported in the form of scrap, waste and powder.

Besides mica blocks, waste and powder, India exports certain types of fabricated mica like condensor film plates, washers and discs, sheets and strips, micanite etc. Overseas supplies of fabricated mica in 1971-72 amounted to 199,610 kg. at Rs. 21.90 million as compared to 177,120 kg. valued at Rs. 16.08 million in 1970-71.

Export of mica, excepting manufactured and fabricated mica, micanite reconstituted mica, mica, powder and mica paper has been canalised through the MMTC since January, 1972.

The total export turnover of MMTC including the export of minerals such as iron ore, manganese ore and minor ores besides mica was of the order of about Rs. 1220 million in 1971-72.

Besides being the foremost exporter of mica in the world, India is also the largest producer of the minerals. The mica producing areas in the country are Bihar, Andhra Pradesh and Rajasthan. Production of mica in 1970 amounted to 21,236 tonnes including 16,274 tonnes of crude mica and 4,962 tonnes of mica waste and scrap.

Mica possesses unique combination of flexibility, resistance, transparency, low chemical and thermal conductivity, and high de-electric strength which makes this mineral usable in many industries and for diversified applications. Extensive use of mica is made in spark plugs for high power motors, transformer, radio condensors and in radar circuits, filaments in radio receiving sets, filters in television sets, insulation in generators or motors which run at high temperature, insulation commutators, capacitors and in the electronic industry.

EXPORT ORDERS FOR BICYCLES AND MOTORCYCLES

Indian firms who participated in the Bicycles and Motorcycles Exhibition recently held in Cologne Federal Republic of Germany, secured export orders worth DM 1.5 million, and generated several enquiries for bicycles and components. The fourth largest producer in the world, India's bicycle industry exhibited complete bicycles for gents and ladies, three speed typesports model bicycles, bicycle chains, free wheels of 1, 3, 4 and 5 speeds, caliper brakes, coaster brake hubs, front and rear hubs, BB axles and cups, pedals, spokes, chainwheels and cranks and saddles.

Indian exports secured more than 150 enquiries from various importers and manufacturers of bicycles from the ECM markets, UK, Scandinavian countries, U.S.A., Canada and Latin America. Two of the firms have also bagged orders worth DM 1.5 million for the supply of freewheels of 1, 3, 4 and 5 speeds, spokes and rare hubs, BB axeles and cups. Serious negotiations are stated to be underway for supply of spokes, coaster brake hubs, bicycle chains, freewheels and cranks and complete bicycles of one and three speeds.

Keen interest in Indian bicycles was shown by the various visitors to the exhibition according to the Engineering Export Promotion Council, Calcutta, due to their internationally comparable quality, competitive delivery schedules and prices.

EXPORT PERFORMANCE AND POTENTIAL

FOREIGN TRADE TARGETS

Under the Fourth Five-Year Plan, India's overall exports are expected to reach a level of Rs. 19,000 million in 1973-74 over the base-year exports of Rs. 13580 million in 1968-69, which implied an increase of 40 per cent of exports over the period of five years or a compound rate of growth of 7 per cent per year. As regards imports, the Fourth Plan envisages India's overall imports to rise by nearly 16.3 per cent over a period of five years from a level of Rs. 19,090 million in 1968-69 to Rs. 22,200 million in 1973-74. The following is a picture of India's overall imports and exports in recent years.

(Rs. million)

	1968-69	1969-70	1970-71	1971-72	April – August	
					1972-73	1971-72
Imports	19090	15830	16340	18120	7010	7650
Exports (including re-exports)	13580	14130	15350	16070*	7560	6400

*including substantial exports to Bangladesh approximately Rs. 380 million.

In relation to the overall plan targets of imports and exports, the actual performance in the first three years and the latter months of the fourth year would be of interest. In the import field, the plan contemplated rise in imports. On the contrary the yearly actual imports during the first three years of the Fourth Plan and the subsequent months have been lower than the base-year imports of Rs. 19,090 million in 1968-69. This has been due mainly to substantial decline in the imports of foodgrains and partly due to the efforts of import substitution.

The growth rate of overall exports during the first three years of the Fourth Plan varied from 4.1 per cent in 1969-70 to 8.6 per cent in 1970-71 and 4.6 per cent in 1971-72. Roughly, the rate of growth of exports during these three years, as a whole, worked out at compound rate to nearly 5.8 per cent per year as against the target of 7 per cent annual rate of growth stipulated in the Fourth Plan. The export performance for the first five months of 1972-73 is, however, encouraging.

There has been some setback, particularly in 1971-72 in respect of some of India's important items of export, namely iron and steel, iron ore, manganese ore, ferro-manganese, engineering goods etc, on account of certain adverse factors. The major factors are the continuing shortages of domestic supply of certain basic raw materials like steel, non-ferrous metals and cotton, all needed for export production. Also the recession in the world steel industry affected India's export of to iron-ore and ferro-managanese. Transport bottlenecks and dislocation in shipments were also noticed due to Indo-Pak hostilities. The international monetary crisis added to the uncertainties of foreign trade. Inadequate shipping space and increasing freight rates constitute the other reasons.

For the current financial year 1972-73, the target as decided by the Ministry of Foreign Trade is Rs. 17,600 million which would mean an increase of nearly 9.5 per cent over the level of 1971-72.

EXPORT REVIEW OF ENGINEERING PRODUCTS

India's exports of engineering goods during 1971-72 are estimated at Rs. 1260.40 million as against Rs. 1166.0 million in 1970-71. These exports, however exclude supplies to Bangladesh and to the projects in India financed by international organisations such as UNICEF and IBRD.

Several areas of engineering production have exhibited export growth. Compared to the value in 1970-71 exports in 1971-72 for some of the individual products are indicated below :

Bicycles and parts (Rs. 69.10 million in 1970-71 and Rs. 80.45 million in 1971-72); M.S. Pipes and tubes (Rs. 71.87 million and Rs. 74.12 million respectively); Railway coaches and wagons (Rs. 21.09 million and Rs. 65.65 million); Hand tools and small tools (Rs. 43.78 million and Rs. 61.00 million respectively); Jute, textile and knitting machinery (Rs. 59.62 million and Rs. 59.62 million); Electric motors, transformers etc. (Rs. 22.42 million and Rs. 50.70 million); Transmission line towers and poles (Rs. 28.65 million and Rs. 37.59 million); Diesel engines and parts (Rs. 27.27 million and Rs. 33.00 million); Machine tools (Rs. 28.38 million and Rs. 30.43 million); Dry and storage batteries Rs. 21.66 million and Rs. 25.83 million); Steel Structurals Fabricated including P.S. tanks (Rs. 14.16 million and Rs. 24.50 million); Office Machinery (Rs. 19.24 million and Rs. 22.30 million); Radios and components (Rs. 16.84 million and Rs. 22.29 million); Electric fans and parts (Rs. 14.38 million and Rs. 15.65 million); Builders' hardware including locks (Rs. 8.36 million and Rs. 13.48 million); Brass/copper sheets, circles, rods and tubes (Rs. 13.46 million and Rs. 13.47 million); E.P.N.S. ware (Rs. 9.54 million and Rs. 12.36 million); Electrical accessories and appliances (Rs. 10.33 million and Rs. 11.59 million); Sugar Mill Machinery (Rs. 1.76 million and Rs. 11.07 million); Asbestos Cement Plant and Mill Machinery including concrete vibrators (Rs. 3.44 million and Rs. 9.52 million); Scientific and surgical instruments (Rs. 5.29 million and Rs. 9.30 million); Air conditioners, refrigerators, water coolers etc. (Rs. 6.13 million and Rs. 8.51 million); Oil Lamps and stoves (Pressure and non-pressure) (Rs. 5.76 million and Rs. 8.46 million); Boilers and fitting (Rs. 5.87 million and Rs. 8.13 million); Water and sanitary fittings (Rs. 6.81 million and Rs. 7.44 million); Mechanical Pumps (Rs. 6.71 million and Rs. 7.40 million); Steel furniture (Rs. 5.85 million and Rs. 7.21 million); Aluminium Utensils and capsules (Rs. 5.93 million and Rs. 6.54 million); Fire Arms of sports (Rs. 5.36 million and Rs. 5.58 million); Sewing machines and parts (Rs. 1.57 million and Rs. 5.48 million); Aluminium sheets, Circles and Foils (Rs. 3.88 million and Rs. 5.33 million); Electrodes and welding rods (Rs. 3.65 million and Rs. 4.34 million); Gramophone records (Rs. 4.32 million and 4.34 million); Forgings (Rs. 2.58 million and Rs. 3.53 million); Umbrellas and fittings (Rs. 2.99 million and Rs. 3.20 million); Brass and copper utensils (Rs. 2.18 million and Rs. 2.95 million); Ball and roller bearing (Rs. 2.15 million and Rs. 2.78 million); Abrasives and grinding wheels (Rs. 2.10 million and Rs. 2.87 million); Cutlery (Rs. 2.00 million and Rs. 2.60 million); Steel ghammellas and other steel utensils (Rs. 1.10 million and Rs. 2.47 million); Tractors and parts (Rs. 0.77 million and Rs. 2.39 million); Pilfer Proof closures and collapsible tubes (Rs. 2.03 million and Rs. 2.40 million); Public Address equipment (Rs. 1.63 million and Rs. 2.21 million); G.I. Buckets, Drums, Tubs etc. (Rs. 1.66 million and Rs. 2.09 million); Rice, Dal, Flour Mill machinery (Rs. 1.27 million and Rs. 1.97 million); Razor blades (Rs. 1.32 million and Rs. 1.86 million); Flash lights and parts (Rs. 0.99 million and Rs. 1.12 million); Train lighting and railway signalling equipment (Rs. 0.99 million and Rs. 1.10 million) and weighing equipments including weighing machines (Rs. 0.63 million and Rs. 0.91 million).

Among the individual products whose export have fallen in 1971-72 as compared to the preceeding year, auto and auto parts constitute an important item. Its export value fell from Rs. 212.70 million to Rs. 151.40 million. The offtake of electric wires and cables was also lower at Rs. 112.53 million as compared to Rs. 113.19 million. Cast iron products, wire and wire products, bright steel bars and shaftings, electric lamps and fluorescent tubes, stainless steel utensils and trunks are among the other products for which export value decreased.

Regionwise, 47 per cent of the total exports in 1971-72 was absorbed by Asian markets. Their intake rose from Rs. 513 million in 1970-71 to Rs. 587 million in the following year. The South East Asian countries increased their purchases from Rs. 299.5 million to Rs. 329.6 million.

The African countries accounted for 27 per cent of India's total exports in 1971-72 while there was a marginal fall in the total intake of the African continent from Rs. 345.6 million, to Rs. 341.0 million. East African markets substantially improved their purchases from Rs. 73 million to Rs. 97 million.

East and West Europe individually accounted for one-tenths of the total export trade in the line. East European purchases rose from Rs. 123.10 million to Rs. 131.00 million while the West European imports improved from Rs. 101.60 million to Rs. 115.50 million. The imports by the American markets worked out only 3 per cent of the total engineering products supplies from India. In fact, the American imports fell from Rs. 51.70 million to Rs. 42.40 million.

FACTS ON INDO-SUDANESE TRADE

Trade between India and Sudan is carried through a non-convertible bilateral trade arrangement. Two major features of the arrangement which is valid up to the end of December 1972 are that the unit of account is pound sterling and that if one of the parties has fulfilled its obligation and the other has not or has exceeded the ceilings laid down in the Trade Plan, the creditor party can technically ask for settlement of the net balance in its favour in a convertible currency of its choice. Thus, there is a convertibility inherent in the Trade Arrangement. Under the current Arrangement, Sudan undertook to supply cotton worth about £ 32 million against imports from India worth about £ 28.8 million. It was noticed that by the end of June 1972, the Sudanese side exhausted the overall ceiling of £ 28.8 million provided for their imports from India. This created a situation in which there were still six months to go in the Trade Plan for 1972, but no money was left with the Sudanese side to finance their further imports from India. Further, as against cotton worth £ 32 million to be supplied by the Sudanese, they have shipped cotton worth only about £ 20 million. Since India already fulfilled her obligation of supplying goods worth £ 28.8 million to Sudan, it was decided to put a temporary halt to further exports to that country pending clarification from the Sudanese side as to how they proposed to finance their imports from India during the remaining period of the current trade plan.

After extensive negotiations with a visiting Sudanese trade delegation in the end of August 1972, it was settled that besides cotton worth £ 32 million which the Sudanese had already agreed to supply under the Trade Plan, they would also supply an additional quantity of cotton worth about £ 7 million during the current plan. From the Indian side, it was agreed to lift the temporary ban on exports to Sudan. India also agreed to further export goods worth £ 6.85 million to Sudan by the end of December 1972. The additional exports agreed to include £ 2 million worth of tea, £ 0.67 million worth of jute goods, Government purchases valued at £ 0.55 million, raw materials and essential oils worth £ 0.50 million, spare parts worth £ 0.13 million and miscellaneous goods worth £ 0.60 million.

Indian exports to Sudan were of the order of Rs. 517.43 million in 1971-72 and Rs. 382.69 million in 1970-71. Indian imports from that country in the respective years were Rs. 252.25 million and Rs. 209.37 million.

INDO-AUSTRALIAN JOINT VENTURES

India has a proposal to set up an industrial joint venture in Australia. The proposal from M/s. Graphite India Limited, Calcutta for the manufacture of carbon and graphite products in collaboration with M/s. Great Lakes Carbon Corporation (USA) and another Australian company has been recently approved by the Government of India in principle. The proposal is to export the semi-finished products manufactured in India to be subsequently graphitised and finished as per requirements to cater to the Australian market. The total equity capital proposed for the project is US $ 10 million out of which Indian participation will be Rs. 3.5 million. Indian contribution towards the equity will be by way of export of semi-finished graphites manufactured in India.

India is in a position to participate in joint ventures and undertake the establishment of projects on a turnkey basis in several fields of industry including sugar, ement, paper, solvent extraction plants, machine tools, ight and medium structural fabrication, diesel engines, ewing machines, electric motors, transformers, switchgears, boilers, rayon fibre, plasticisers, industrial alcohol, sulphuric acid, fertilizers and chemical equipment.

Some of the areas in which Indo-Australian cooperation can prove mutually helpful are dry batteries, machine tools, small cutting tools, auto ancillaries, electric fans, clothing, readymade garments and hosiery, woollen carpets, hard board, artisan tools, window and cabinet hardwares and sewing machines. There are possibilities of India's setting up joint ventures in Western Australia in the field of fruit canning, manufacture of resins and paraffin wax and fashion footwear. The two countries can also collaborate in setting up meat processing factories in third countries with Australian know-how and part of the equipment being fabricated in India. Similarly, bread-making plants could be set up by the two countries in third countries.

India's export trade with Australia amounted to Rs. 280 million in 1971-72 as compared to her imports at Rs. 294 million. In 1960-61 Indian exports were only Rs. 223.8 million while her imports were Rs. 178 million. Supplies from India to Australia have mainly been jute manufactures, cotton fabrics, tea, cashew kernels, fish and fish preparations, woollen carpets and rugs, machinery, footwear, pearls, precious and semi-precious stones. Indian imports from that country have been raw wool, wheat, non-ferrous metals and iron and steel.

Australia has been collaborating with the Indian industry in the manufacture in India of Diamond Drilling Bits, Thin walled Bearings, Furnaces, Cycle Tyres and Tubes, Machine Tools, Plastic Battery Separators, Taximeters, Slaughter House Equipment, Conveyors, welding Electrodes, Razor Blades, etc.

THAI INTEREST IN INDIAN WAGONS

A delegation of the Thailand railways which is currently touring India have evinced keen interest in the purchase of railway coaches and bogies. Indian firms, both in public and private sectors, are confident of meeting the requirements of all types of railway equipment including wagons required by the Thai railways.

Earlier, a high-level railway delegation visited Thailand to discuss with the Thai railway authorities, matters relating to Indian assistance in the development of their railways.

India has already supplied 47 bogies and spares to Thai railways. The Indian railway experts have prepared two reports - one on the speed up of passenger trains and another on techno-economic feasibility studies of new railway lines, their surveys and construction.

Indian railways constitute Asia's largest and the world's fourth largest network. They cover distances aggregating 1.3 million kilometres per day equivalent to 32 times the journey round the earth at the equator. The wagon building in the country is well established. Its installed capacity is of the order of 32,320 numbers in terms of four-wheelers and the actual production in 1971 was around 7760 numbers. The industry produces a wide variety of wagons including hopper wagons, covered wagons, petrol wagons, etc. It also turns out a broad range of railway equipment such as rails, sleepers, fish plates, points and crossings, taper keys, loose jaws, fish bolts and nuts, dogspikes, round spikes, mechanical and electrical signalling equipment etc.

India exports a wide variety of railway equipment and rolling stock, particularly the wagon building industry has made a good headway in international markets. The railway industry in India secured several export contracts from East Africa, Hungary, Poland, Burma, Sri Lanka, South Korea, Sudan, Iran, Iraq etc. It is expected that the export earning from the railway industry will be of the order of Rs. 680 million in 1972-73. Besides direct exports, the Indian railways have also undertaken consultancy services in countries like Iran, Thailand, Philippines, Iraq, Syria and Jordan.

MALAYSIA INVITES INDIAN KNOW-HOW

The Malaysian Minister of Science and Technology invited Indian industrialists to invest more in Indo-Malaysian joint ventures. Speaking on the occasion of the Malaysian National day at the Asian Trade Fair being held now in New Delhi, he stated "Over the past four or five years, we had seen increasing number of Indian trade missions, industrialists' groups and individual investors visiting our country. We are confident that they will find both opportunity and friendship in Malaysia. There are fields like in light engineering goods, precision instruments and labour-intensive products where we can gainfully collaborate and compete with the rest of the world."

Malaysia would appreciate the difficulties of India in terms of exporting capital, the Malaysian Minister said, "but what we need most is technical know-how and expertise which is in such abundance in India."

Enumerating the achievements of joint collaboration of Indian and Malaysian industrialists, the Minister said that there were products of eight Indo-Malaysian industries on display at the present trade fair ranging from mining and machine tools, electric motors, sluice valves, alternators, steel, office equipment to products such as sweets, toffees and textiles. There are thirteen other joint Indo-Malaysian projects which are in various stages of implementation, whose total value adds up to about Rs. 200 million.

EXTERNAL COMMERCE IN FEATURE FILMS

The Government of India have canalised the import and export trade of feature films through the State Trading Corporation of India, effective from August 3, 1972 and November 1, 1972 respectively. While canalising the commerce in this line, a provision has been made to import quality films from some of the importing countries as a measure of reciprocity.

To supplement the efforts made by private traders for export of films, the Government set up the Indian Motion Pictures Export Corporation (IMPEC) at Bombay to undertake film exports. The Corporation succeeded in improving its share in the total export trade of films from year to year. In 1964-65, its share was only 0.19 per cent; in 1971-72 it was over 10 per cent. In that year India's total exports of films were of the order of Rs. 15.15 million out of which the IMPEC's share was Rs. 5.3 million.

The import of films from U.S.A. was allowed under a special arrangement entered into by the Government of India with the Motion Picures of Export Association of America (MPEAA). The agreement expired by June 1971. The agreement was not renewed as it was observed that the Association failed to take concrete steps in implementing the assurance given by them to the Indian Government in regard to the liquidation of the blocked accounts. The blocked amounts were to be utilised for purchase or rental of Indian films, production and co-production of films in India, building, purchase, leasing and renovating of motion pictures theatres in India etc. They had neither spent the money on location shooting of their films in India, nor had exported Indian films during the currency of the agreement with the result that the blocked accounts rose up to Rs. 45.5 million in August, 1972 as against Rs. 9.3 million in April, 1962.

An agreement with Sovexportfilm, Moscow and India's IMPEC was signed in August 1968 and subsequently in 1969 and 1971 for import of films from U.S.S.R. and export of Indian films to that country. The present agreement is valid for a period of five years. Under the agreement, the Russian importer is to export into India films of length 1.5 million feet. Indian films of a minimum value of Rs. 0.8 million are to be exported to that country. The balance amount is to be credited to the non-convertible rupee account of the U.S.S.R. in India for use in accordance with the agreement governing such Rupee credit.

Export of developed cinematographic films from India during 1971-72 amounted to Rs. 50.15 million. The demand for Indian feature films in the overseas markets has been growing, year after year, excluding the previous year. In 1970-71, the exports earned foreign exchange at a value of Rs. 58.58 million.

Feature films were the foremost category of exports which netted foreign exchange to the tune of Rs. 47.91 million in 1971-72, accounting for more than 95 per cent of the total export value of the entire group. U.K. emerged as the number one importing country having absorbed feature films valued at Rs. 9.72 million, followed by Singapore at Rs. 5.44 million, Dubai at Rs. 4.02 million, Indonesia at Rs. 3.19 million, Kenya at Rs. 2.48 million, Nigeria at Rs. 2.11 million, Mauritius at Rs. 1.64 million, Trinidad at Rs 1.61 million, Sri Lanka at Rs. 1.47 million, Morocco at Rs 1.34 million, Lebanon at Rs. 1.24 million, U.S.A. at Rs. 1.13 million, Thailand at Rs. 1.09 million, Fiji Islands at Rs 1.07 million etc. Afghanistan, Malawi, Tanzania Republic, A. R. E., Hong Kong, Greece and Ethiopia etc. were the other important markets.

Developed cine films with sound track constituted one more category of exports, having earned Rs. 1.61 million. A large number of countries imported this item during the year. U.K. again occupied the position of the principal importing country (Rs. 494,981) followed by Fiji Islands (Rs. 188,264), U.S A. (Rs. 155,762), Sri Lanka (Rs. 103,727).

Exports of advertising shorts, news reel etc. earned Rs. 0.63 million. The prominent markets included U.S.A., Indonesia, Nepal, Anstralia, France, Federal Republic of Germany, Lebanon, Switzerland etc.

Adding to the export effort of the Indian film industry, the Indian Motion Pictures Export Corporation (IMPEC), Bombay, recently concluded a contract with Promociones Filmicas Internacionales of Peru for the supply of 31 Indian feature films valued at $ 251,500 (Rs. 1.9 million) for exclusive screening in Latin America.

EXPORT PROSPECTS OF LAC

Foreign exchange earnings from lac exports are expected to go up from Rs. 66 million in 1971-72 to Rs. 100 million by the end of the Fifth Plan (1978-79). The quantum of export is to improve from 13,000 tonnes to 20,000 tonnes, according to the Indian Lac Development Council. A study group concerned with the lac industry stated that its production can be raised from about 27,000 tonnes in 1971-72 to 45,000 tonnes in 1978-79.

Till recently, India had a virtual monopoly in the world lac production contributing nearly 80 to 90 per cent of the world requirement. Now, Thailand has stepped up its lac production sizeably.

Nearly 90 per cent of the lac produced in India is being exported to the United States, U.K., the U.S.S.R., West Getmany and other East European countries as well as Latin America.

Bihar accounts for about 40 per cent of the country's lac production while Madhya Pradesh accounts for 26 per cent, West Bengal 21 per cent and Maharashtra and Gujarat 6 per cent each. The Study Group indicated that Bihar can increase its production from 17,000 tonnes to 22,100 tonnes by 1978-79.

A closer look on the export trade of lac in 1971-72 would indicate that hand-made and machine-made shellac earned as much as Rs. 49.70 million, of which U.S.A. imported worth Rs. 6.25 million and U.S.S.R. purchased worth Rs. 3.3 million. Mexico is another important purchaser of hand-made shellac (Rs. 1.06 million). Brazil, Indonesia, Italy, Australia and Singapore are the other major markets for machine-made shellac.

Export of seedlac was of the order of Rs. 12.21 million. U.S.A. imported half of these supplies (Rs. 6.16 million). Federal Republic of Germany was another important buyer (Rs. 3.6 million), followed by U.K. (Rs. 1.90 million).

Button and garnet lac also constitute significant export line, among lacs, having netted Rs. 3.90 million with U.K. and U.S.A. as the leading markets.

The entire group of natural gums, resins, balsam and lacs fetched Rs. 118.37 million of which the share of lacs was Rs. 65.91 million. Karaya gum is an important line of export in the group excluding lacs. The gum was exported to the level of Rs. 39.33 million in 1971-72. The U.S.A. was the most important market at Rs. 22.42 million. France is another major market at Rs. 7.9 million. U.K. imported the gum worth Rs. 5.34 million. The export value of other gums in the year totalled Rs. 13.42 million. Asafoetida is yet another line of export in the group. Malaysia, Lesotho, U.K , Singapore and Kenya were the important buyers of this product.

PROMOTION OF SEA FOOD EXPORTS

There has been a steady increase in the export trade of sea foods during the last one decade. The export value which was Rs. 414 million in 1971-72 is expected to reach Rs. 670 million in 1975-76. A target of Rs. 1230 million has been set for the exports by the end of the Fifth Five-Year Plan (1978-79).

New markets are being explored by the Indian trading community to meet the challenge of some foreign buyers to push down prices of Indian sea foods. The Government of India are indeed aware of stiff competition from China in some of the foreign markets where India had established reputation. The quality of Indian supplies are, however, superior and this is a fact well recognised by many of the importing countries.

In the range of Indian sea-food exports, prawns and shrimps lead the list. Chilled or frozen prawns and shrimps were exported to the tune of Rs. 357.34 million in 1971-72. Japan has imported worth Rs. 223.5 million while the USA has purchased at a value of Rs. 110 million. Dry and salted fish is another important item of export having earned Rs. 14.28 million. Sri Lanka was the major buyer at a value of Rs. 12.10 million. Dry prawns and shrimps netted Rs. 3.80 million. Canned prawns and shrimps were supplied abroad to the tune of Rs. 23.66 million in the same year. U.K., U.S.A., France and German Democratic Republic proved to be the best markets of this variety. Additionally, among other items active in the export trade are pomfretes and other fish, lobsters and fish preparations in air-tight containers.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

AIR COMPRESSORS INDUSTRY

Eleven industrial units engaged in the production of air-compressors with an installed capacity of 8000 numbers have produced an estimated 5060 numbers of air-compressors during 1971 at a value of Rs. 76.11 million; the installed capacity, however, excludes that available in the Bharat Heavy Electricals Limited, in the public sector.

The air-compressors are used for several applications including mines, petro-chemical complexes, garages and the fertilizer industry. The equipment is also essential in most of the work-shops for cleaning, operating equipment like air drills and air motors as also for supplying air for the rock drills in mines.

Wayback twenty-five years, the production of air-compressors started in a modest way in India in the pressure ranges up to 150 PSIG. Presently the compressors that are being manufactured range from 2 CFM to 4500 CFM in volume delivery and the pressure ranges up to 3000 pounds in the small volume, say up to 40 CFM - about 250 to 500 and the middle range up to 1000 CFM and 150 PSIG in ranges over 1000 to 4000 CFM.

Production of compressors for gas applications has also been taken up in India. Gradually all the applications for gas are expected to be covered.

Two public sector units are permitted by the Government of India to manufacture air compressors and gas compressors in the higher ranges than 4500 CFM and of high pressures. One unit is to manufacture centrifugal compressors and the other one to produce reciprocal type of compressors.

Air and gas compressors have also entered the export market. During 1971-72, over 2550 numbers of these products were exported to fetch Rs. 2.55 million. Philippines was the leading market at a value of Rs. 0.54 million (1770 numbers). Nigeria imported 43 numbers at Rs. 0.44 million. The Arab Republic of Egypt is yet another market having purchased about 630 units at a value of Rs. 0.31 million. Malaysia, Muscat, Kenya, France, Iran, Spain, Sweden, Belgium and GDR are among the other importers.

STEPS TO PROMOTE RAW SILK OUTPUT

Compared to the production in 1970 at 2.84 million kg., raw silk in India was produced to the tune of 2.72 million kg. in 1971.

To step up raw silk production in a big way, certain measures are being taken by the Government of India and the concerned industrial and research interests. A Rs. 800 million crash programme for stepping up production of mulberry silk in the Mysore State from the current level of 1.8 million kg. to 3.5 million kg. during the next decade has been taken up for implementation by the Mysore Government. Recent research findings of the Central Tasar Research Station, Ranchi indicated the possibilities of large exploitation of nature grown oak plant found extensively in the sub-Himalayan region for production of tasar cocoons.

The Central Silk Board has formulated a project for production of 0.5 million kg. of tasar silk annually in the State of Manipur. The new high yielding breeds of silkworms and improved techniques of rearing evolved at the Research Stations at Mysore, Berhampore and Ranchi are to be popularised through the effective extension work for which specific schemes have already been formulated by the Central Silk Board. The services of two Japanese sericultural experts are being secured through the Food and Agricultural Organisation (F.A.O.) to advise the Central Silk Board and the State Governments in the implementation of projects for increasing production of bivoltine silk in the country.

PROGRESS IN EDUCATION

There are 63.1 million students in India's primary schools now (classes I - V) as against 14.1 million in 1947, representing an increase of about 350 per cent. The number of students in class VI - VIII rose from two million in 1947 to 14.9 million in 1972. This shows an increase of 650 per cent. Enrolment in class IX to XI increased from 0.85 million in 1947 to 84 million in 1972 reflecting an increase of almost 900 per cent. Only 0.25 million students were at the university stage when India became independent. Their number is currently over 2.54 million, showing an increase of about 900 per cent.

The percentage of girls to boys in the age group of six to eleven rose from 35 in 1947 to 60 in 1972; in the age group of 11 to 14 from 18 to 37, in the age group of 14-17 from 12 to 28 and at the university stage from 8 to 18.

Expenditure on education increased from Rs. 1144 million in 1950 to Rs. 8500 million in 1968-69, representing an increase of about 640 per cent.

JOINT COMMISSION FOR INDO-SWEDISH CO-OPERATION

The foreign ministers of Sweden and India have recently exchanged letters for the setting up of a joint commission on Economic, Industrial, Technical and Scientific Co-operation between the two countries.

The Commission is to investigate and identify the areas for closer co-operation between the two countries in the industrial and technical fields. It is also to seek co-operation in the exchange of ideas and information regarding the economic development of the two countries.

The Indo-Swedish joint commission has a special significance in that this would be the first such commission established by India in a developed country in West Europe.

Indo-Swedish trade exchanges have been growing year after year. The export trade from India to Sweden amouted to Rs. 60.28 million in 1971-72 as compared to Rs. 59.33 million in 1970-71. In these two years, Indian imports from that country amounted to Rs. 126.50 million and Rs. 98.00 million.

Two Agreements on Co-operation Development between Sweden and India were also signed recently by the Foreign Affairs Ministers of the two countries. By the Agreements Sweden has committed economic and technical assistance of Rs. 385 million which can be utilised by India over a three-year period. The assistance is to be utilised for a variety of purposes like imports of certain key commodities, machinery, equipment and maintenance requirements of spares and components.

INDIA ASSISTS MAURITIUS

India is assisting Mauritius for the establishment of an Industrial and Technical Training Institute. The Government of India has granted Rs. 3.05 million for the Institute as also provides experts and equipment for the same.

Recently a report on the establishment of the Institute has been prepared by the Directorate General of Employment and Training, Government of India, who visited that country to study the industrial conditions and advise on the formation of the Institute and the specific trades to be taught there. The report was recently presented by the Indian High Commissioner to the Government of Mauritius. While persenting the report, the High Commissioner referred to the close links between India and Maruitius and the Government of India's desire to assist that country in her various development plans.

TRIPARTITE MARITIME CO-OPERATION

Two official delegations from Yugoslavia and Arab Republic of Egypt visited India to hold the first meeting of the Working Group III set up at the Tripartite Ministerial meeting with India held in September 1970. The Group is to consider the possibilities of setting up joint shipping services and other measures relating to the improvement of maritime services and international economic cooperation.

The Group divided into three sub-groups which would deal with shipping and ship building, banking, insurance and telecommunications. The Indian delegates to the Group include representatives from Banking, Insurance and Telecommunication of the Government of India.

India has bilateral shipping service with Arab Republic of Egypt as also close shipping ties with Yugoslavia. Already eighteen ships have been purchased by India from Yugoslavia and six additional ships are on order.

CROP ESTIMATES FOR 1971-72

In an area of 37.3 million hectares, India's rice production in 1971-72 is estimated to have grown to 42.73 million tonnes as against 42.23 million tonnes in the preceding year. The production of wheat also increased to 26.48 million tonnes from 23.83 million tonnes. The area of wheat cultivation was of the order of 19.16 million hectares in 1971-72. The total production of cereals in this year was 93.60 million tonnes. The other cereals included are jowar, bajra maize, ragi, barley and small millets. Production of pulses recorded a marginal fall from 11.82 million tonnes to 11.06 million tonnes.

The estimated foodgrain production for 1971-72 was 104.66 million tonnes as compared to 108.42 million tonnes in the preceding year. The total area under foodgrains in 1971-72 was 122.22 million hectares of which the area for cereals was 100.05 million hectares.

INDIA'S COLLABORATION IN WORLD STANDARDIZATION

The Indian Standards Institution (ISI) has been in the forefront in the context of international collaboration in standardization. Besides its participation in the International Organisation for Standardization (ISO) and the International Electrotechnical Commission (IEC), ISI collaborates with U.N. organisations in several fields of work connected with standardization including training of personnel.

In the Steel Sections field, the Structurals and Metals Division is involved in several technical committees and working groups. It was, in fact, at India's request that the question of re-designing steel sections to more economic proportions was taken up to prepare international standards by coordinating the work done in India, USSR and some European countries.

In the measurement of fluid flow which is pertinent for regulating utilization of common water resources among different nations, the Working Committee of ISI proved responsible in giving lead to the international effort.

Only last year, India proposed about 90 subjects to be covered by the ISO Technical Committee on Shipbuilding Details. This led to a complete reorganisation of the working of the Committee on a more functional basis. India has been offered the Secretariat for one of the sub-committees on Terminology, Symbols and Drawings. The ISI also holds the Secretariat for Pictorial Markings for Handling of Goods.

The ISI is also represented on the editing board of the Committee on the Performance Requirements and Tests for Transport Packages. It is mainly because of India's persuation that the need for considering the Asiatic climatic conditions is accepted as part of the test requirements. The ISI is actively promoting the containerization programme in India and is having the ISO container and ballet specifications accepted in this country.

In the textile field, India has made a valuable contribution to international adoption of the tex system by conducting an international survey that has become instrumental in getting the ISO to agree to a phased programme of implementation of the system by 1974.

The tex system is a direct metric system that can accurately assess the linear density of a fibre, whether it is a single filmament or a rope.

The Agricultural and Food Products Division of the ISI holds the secretariat for spices and condiments as well as stimulant foods and is thus able to take care of international recommendations on these subjects which are of export interest to India. On the basis of Indian Standards, about 40 ISO recommendations have been so far processed. Mention may be made of the methods of sampling and testing of spices and condiments, the specifications for tea and glossary of terms for testing tea.

Now India is a participating member of 112 technical committees of ISO out of a total of nearly 150. The ISI holds the secretariat of 17 committees, subcommittees and working groups dealing with the various subjects of particular interest to India.

India has played an important role in helping the ISO provide a solution to bridge the gaps that arose between the inch-pound based and metric-using countries so that a degree of correspondence and interchangeability could be securcd, notwithstanding the difference in the standard systems. India's original document on the basic methods for the inter-conversion of values was used as the basis for international recommendations on this subject.

Of the 56 national standards bodies that constitute the ISO membership, only 25 are from the developing regions while another 12 hold correspondent membership. This would mean that while practically all the developed countries are closely connected with the task of shaping international standards, only 45 per cent of the developing nations are represented. India's contribution, partly because of its conditions and climate approximate more closely to the general conditions in the developing world, has been recognised to be of value.

CEMENT PLANT FOR BHUTAN

A cement plant is to be set up at Pagli in Bhutan in collaboration with the Cement Corporation of India. The cost of the plant, after completion, would be of the order of about Rs. 60 million. Its annual production would be 100,000 tonnes of cement. The Bhutanese Government have recently approved the project report which was prepared a year ago.

India's total cement production rose from 2.7 million tonnes in 1951 to 10.65 million tonnes in 1965, 11.15 million tonnes in 1966, 11.36 million tonnes in 1967, 11.94 million tonnes in 1968, 13.62 million tonnes in 1969, 14.03 million tonnes in 1970 and 14.93 million tonnes in 1971. The production of cement during 1970 was valued at Rs. 1550 million. During 1970-71, there were 50 units engaged in the production of cement. The target of production during the fourth plan was set up at 18 million tonnes (1973-74).

The installed capacity in 1970 and 1971 was of the order of 17 million tonnes and 19.39 million tonnes respectively.

India's export earnings from cement and cement products totalled Rs. 27.30 million in 1971-72. Of this Portland Grey variety earned Rs. 24.84 million. Nepal was the principal importer of this variety whose total intake was valued at Rs. 11.14 million, followed by Muscat at Rs. 10 million, Sri Lanka at Rs. 1.76 million and Bangladesh at Rs. 1.43 million. Hydraulic cement and portland white were the other categories of export.

Among the cement products, asbestos cement sheets earned foreign exchange worth Rs. 1.69 million. The prominent destinations included Dubai, Abu Dhabi, Nepal, Malaysia, Sudan and Bahrein Islands etc. Besides, the export values of other cement products were : Asbestos cement pipes Rs. 0.59 million, asbestos cement tiles Rs. 81,910 and other articles of asbestos cement Rs. 108,145.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

SEMI-AUTOMATIC SWITCHBOARD DEVELOPED

A semi-automatic fifteen line switchboard for use of infantry battalions, artilery and armoured regiments and other units of armed forces has been developed by the Electronics and Radar Development Establishment at Bangalore recently.

The developed equipment has successfully undergone user's trials. It will replace 15 line magneto switchboard, presently in use.

The new equipment is far superior to the conventional one in performance. Besides being cordless, it is free from noises and disturbances, picked up normally by cables and also from intermittent breaks in speech due to lack of proper plugging contacts which develop due to long usage.

WIND INSTRUMENTS DESIGNED

Two wind instruments for recording the wind velocity and wind direction have been designed and developed by the Central Public Health Engineering Institute (CPHERI), Nagpur (Maharashtra).

The instruments developed are handy, easy to instal and they work without electrical (battery or mains) power. Hence, these are specifically suitable for field use in air pollution surveys and for collecting the wind data at the sample site.

Different types of wind direction recorders and wind velocity recorders being used at present are not portable and are also costly and difficult to instal. Some require electrical power and are based on electromagnetic or electronic actuations. Most of the instruments use ink for recording so that the possibility of drying or splashing up of ink is present. Some use complicated two pen system. With the drawbacks present in the conventional instruments in view, investigations to develop a suitable device for recording wind direction and wind speed have been undertaken at CPHERI, Nagpur.

At present, such type of handy wind instruments are not manufactured in the country. As such, either imported instruments are used or readings are taken from indicating type instruments. It is roughly estimated that 100 pcs of wind velocity recorder and 100 pcs of wind direction recorder will be required annually.

The raw materials required in designing of wind instruments are : Aluminium materials (tubes, rods, angles, sheets etc.); brass materials (rods, pipe, screws); hard PVC sheets and cylinders; ball bearings; chart paper drum and clock work mechanism. All are available indigenously. The essential items of plant and machinery required in the process are Drill press, lathe, welding unit spray painting equipment, assembly unit and testing and calibration unit.

PROCESS FOR NON-DRIP CANDLE

Non-drip candles are used by the ski troops at high altitute in the temperature range of +0°C to −30°C without guttering or dripping. Such type of candles are not known to be produced in India and the entire defence requirement, which is estimated at 2,000 candles per annum, is being met through imports.

With a view to develop import substitution, investigations were undertaken at Defence Research Laboratory (Materials), Kanpur and a wax composition consisting of paraffin wax and stearic acid has been successfully developed. The candles are prepared by allowing the molton stearic acid-paraffin wax mixture to solidify in suitable tubular tin moulds, the wick being held centrally in moulds while the wax material is solidifying.

Non-drip candles have certain advantages. For instance, they have sufficient burning time at a reasonable rate; when once extinguished they are easily relighted; they have no charry blob on the wick during burning; they have a steady and good quality flame with reasonable height to give maximum luminocity and they are self snuffing i.e. the charred wick breaks off and drops down by itself.

Stearic acid, paraffin wax white, cotton wick, sodium hydroxide, hydrochloric acid, ammonium phosphate and ammonium sulphate and borax are main raw materials needed in the process. All are indigenously available.

The moulds, ordinary vessel for melting the wax material, heating arrangement and oven are the essential items of plant and machinery required. All these can be fabricated indigenously.

D.C. CHOPPER AMPLIFIER DEVELOPED

A prototype D.C. chopper amplifier has been fabricated by the Central Mechanical Engineering Research Institute (CMERI), Durgapur and is in use.

The problem involved in Amplifying small d.c. signal by means of either a valve or transistor circuit involve well-known D.C. amplifier for direct amplifiaction of small signal suffers from instability. Consequently d.c. signals are not directly amplified in applications where long time stability is essentially required. Usually d.c. is chopped to convert into a.c. signal either by a mechnical chopper or by using transistor switch. There are several advantages and disadvantages in both types of the choppers. But due to technical difficulties, mechanical choppers have not been produced in India uptill now. The replacement of a mechanical chopper by a suitably designed transistor switch has been tried successfully in many corners of the world and the transistor switches for this purpose are available commercially in advanced countries. In India, no such switches have yet been manufactured particularly for very low level d.c. signals. The d.c. chopper amplifier developed by CMERI contains a properly corrected transistor switch and a stable a.c. amplifier and with this combination, high stability has been obtained. This type of d.c. amplifiers will find many applications where systems required d.c. amplifiers particularly for the amplification of Thermo-EMF. This amplifier has got a stability of ± 5 uV in a day, a sensitivity 200 uV input signal for the full scale deflection and linearity within 1 per cent.

At present, most of the requirement for the chopper type d.c. amplifier is met by importing the essential components from abroad. This amplifier developed by CMERI will replace the amplifier containing imported components.

The essential components required are : transistors, resistors, capacitors and meters etc. and all of these are available indigenously.

No special type of device is required for manufacturing such type of unit.

SHIPBUILDING INDUSTRY

Progress in India's capability to build modern oceangoing ships is mainly the story of M/s. Hindustan Shipyard Limited, Visakhapatnam. Till date, the Shipyard has contributed fiftyeight vessels of various types to the Indian fleet. These include fortyseven ocean-going ships, two sophisticated naval vessels, one modern training ship, two passenger ships and a number of harbour craft apart from cargo liners and bulk carriers. These ships aggregate about 0.48 million DWT or 0.35 million GRT.

In quality and workmanship, the Hindustan Shipyard ships have been acclaimed as among the best built anywhere in the world. They carry the highest classification of the Lloyd's Register of Shipping, + 100A1/ — 100A1, + LMC. There are two more shipbuilding yards in the country the Mazagon Dock at Bombay and the Garden Reach Workshop at Calcutta and a third one is under construction at Cochin.

The Mazagon Dock, set up in the 18th century is the oldest ship repairing yard in the country. It is capable of building many types of warships and medium sized passenger/cargo ships. It can undertake complicated ships repairs and general engineering assignments. The frigate 'INS NILGIRI', commissioned by India's Prime Minister, in June this year, is a product of Mazagon Dock.

The Garden Reach Workshop, set up in 1884, has also developed adequate ship repair facilities. It can construct crafts and vessels for the development of coastal shipping. The workshop has built a large number of barges, tugs and dredgers. The development includes capital works to enlarge the shipbuilding capacity for the construction of ocean-going vessels upto 15,000 DWT.

As a majar shipbuilding unit, the Hindustan Shipyard is adequately equipped with a modern drawing office, planning and production control departments, moulding loft, Logotome, 2,000 tonnes Plate Bending Press, foundry, machine shop, blacksmith, sheet metal, plumbing, galvanizing workshops, pre-fabrication and other ancillary shops.

The successful commissioning of the naval survey vessel INS 'DARSHAK' in 1964 was a landmark in the

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history of the Shipyard. 'DARSHAK' has been specifically designed to carry out hydrographic survey and is equipped with the most modern electronic equipment. It is also the first Indian Naval vessel to be fitted with diesel-electric propulsion.

The Hindustan Shipyard has undertaken a Rs. 110 million modernisation programme currently under execution. When completed, this will raise the shipbuilding capacity from the present about 38,000 DWT to more than 80,000 DWT annually. The programme also envisages provision of a big Wet Basin capable of berthing 2 medium-size ships at a time. In addition, the Shipyard has also plans to provide two building docks capable of constructing vessels of all types upto 50,000 DWT.

The Hindustan Dry Dock - largest in the country– built at a cost of Rs. 50 million is capable of accommodating ships upto 57,000 DWT of all types and sizes and in some cases upto 70,000 DWT. It was commissioned in November 1971 and provides facilities for executing all kinds of ship repair jobs. The Shipyard developed its own design to replace the training ship 'Dufferin'. Named "Rajendra", the ship was handed over to the Prime Minister in February this year.

The Hindustan Shipyard has also made considerable headway in regard to import substitution. In the latest series of vessels, now under construction, the percentage of indigenous components accounts for nearly 55 per cent of the total material cost while this was less than 40 per cent till recently. The percentage of indigenous components will further go up to over 70 per cent with the fittings of indigenously manufactured engines.

A Shipyard, capable of building ships upto 85,000 DWT was inaugurated at Cochin in April 1972. It is expected to be completed by 1975 and will attain optimum capacity of building bulk carriers of 65,000 DWT-80,000 DWT annually by 1980-81. The keel of the first ship is, however, expected to be laid in 1973-74. □

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EXPORT SUCCESS IN GRAMOPHONE RECORDS

India-made gramophone record finds its way to every corner of the globe, the principal markets being the U.S.A., the U.K., East European countries including Yugoslavia, Poland, Czechoslovakia and Hungary, the West Asian countries, West Indies, East Africa, Malaysia, Singapore and Fiji. The Indian product is exported against fierce competition from advanced countries abroad.

The country's export trade in the records amounted to over Rs. 5 million in 1971-72. Singapore, U.K., U.S.A., and Yugoslavia were the most important markets, having imported worth Rs. 0.88 million, Rs. 0.85 million Rs. 0.72 million and Rs. 0.51 million respectively. Czechoslovakia, Kenya, Guyana, Hungary, Fiji Islands, Qatar, Trinidad, Dubai, Malaysia, Morocco and Netherlands were among the other buyers. Some exports of gramophone equipment and recorded tapes were also effected in the year.

M/s. Gramophone Company of India Limited, 33, Jessore Road, Dum Dum, Calcutta-28 are one of the leading exporters in the line. Their export trade has been growing at a fast rate reflecting the increasing overseas interest in Indian classical and folk music as also the rising popularity of Indian motion picture music. The company's export sales rose from merely Rs. 1.5 million in 1961-62 to Rs. 6 million in 1970-71.

The Calcutta company belongs to the EMI Group of Companies, which is one of the oldest and the largest record organisations of the world and international leaders in Electronics, Records and Entertainment. Popularly known as HMV (His Master's Voice), the company started the manufacture of records and gramophones as early as 1907. The firm is the exclusive user of the HMV's "Dog and Gramophone" and Columbia's "Tiger" and "Musical Notes within a Circle" trade marks in India. It is also the exclusive registered user of several other EMI trade marks like Angel, Odeon, Regal and Twin. The company has access to the catalogue of major record producers in the world through EMI; these include internationally renowned labels such as C.B.S., R.C.A., - Victor, Decca/Deram, Pye, Liberty/Imperial, etc. The company has a treasure of 70 years' recordings in nearly 40 Indian and foreign languages featuring several thousands of artistes, compositions and titles. Their present catalogue runs to about 10,000 records, featuring every kind of music by most of the renowned Indian artistes.

Besides records, the Gramophone company manufactures, record players, radios, transistor radios, and radiograms. For the first time in 1970, the company achieved a break through in the field of radiogram exports when several thousand radiograms were exported to West Asia, from which source substantial repeat orders are expected. Meanwhile a shipment of record players is due to go out shortly to the same region. With the establishment of facilities for full indigenous manufacture of stereo players, the firm's export of record playing instruments is likely to increase substantially in the near future.

FOOTWEAR AND EXPORT TRADE

Overseas supplies of leather, canvas and rubber footwear have made a mark in India's export trade. The country's export earning of footwear improved to about Rs. 117.60 million in 1971-72 from Rs. 114.40 million in 1970-71. It was only Rs. 92.30 million in 1969-70 and Rs. 90.84 million in the preceding year.

During 1971-72, all-leather shoes, the major item of export in the group, earned as much as Rs. 38.25 million. U.S.S.R. alone accounted for an intake of Rs. 30.82 million. Besides, these shoes were exported to more than 50 other countries, the important ones being U.S.A., Nepal, Canada, Australia, Nigeria, Sudan and Zambia. All-leather-open-toe footwear fetched, another Rs. 29.60 million. U.S.A. absorbed as much as Rs. 16.93 million while the intake by Australia stood at about Rs. 3.64 million. Bahrein Islands, Bulgaria, Canada, Fiji, Kuwait, Netherlands, U.S.S.R. and Zambia were the other major destinations for this item. Other types of leather soled footwear earned Rs. 2.50 million, with USSR at Rs. 1 million again leading the list of importers, followed by U.S.A., Australia, U.K., Somalia and Sudan in that order.

The export sales of rubber soled upper canvas footwear in the year 1971-72 were of the order of Rs. 30.30 million. These proved popular in U.K. (Rs. 10.35 million), Canada (Rs. 3.42 million), Netherlands (Rs. 3.26 million), Zambia (Rs. 2.24 million), Federal Republic of Germany (Rs. 1.60 million) and Nepal (Rs. 1.56 million).

Rubber soled leather footwear brought in Rs. 15.28 million. Import by Australia was around Rs. 9.98 million. U.S.A. and U.K. who were the next important importers accounted for Rs. 5.64 million and Rs. 3.38 million worth respectively.

Rubber footwear, footwear with embroidered uppers, rubber or plastic soled footwear, wood and cork soled footwear etc. also were active in the export trade during 1971-72.

M/s. Bata Shoe Co. Private Ltd., Calcutta, an important manufacturer of footwear in the country have contributed appreciably to the export trade in this line. The company has been able to earn well over Rs. 200 million in the last five years from U.K., West

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European countries, the U.S.A., Canada, Australia, West Indies etc. Interestingly the export earning of the company which amounted to only Rs. 3.1 million in 1950 increased to Rs. 10.13 million in 1960 to shoot up to about Rs. 45.00 million in 1971. The export earning of the company has increased by more than thirteen times during the last two decades. Their foreign exchange earning during the first half of 1972 amounted to Rs. 22.75 million.

Of the total exports effected by the firm during 1971, USA alone accounted for Rs. 10.30 million, followed by U.K. (Rs. 11.50 million), Central Europe (Rs. 6.00 million), Canada (Rs. 4.2 million), Africa (Rs. 2.9 million), Australia (Rs. 2.4 million), West Indies (Rs. 1.9 million), Scandinavian countries (Rs. 1.5 million), Middle East (Rs. 0.8 million), East Europe (Rs. 0.5 million) and Far East Rs. 0.30 million).

With a small beginning four decades back, the company has today developed into an industrial complex with factories at Batanagar (Calcutta), Bataganj (Patna), and Faridabad. Along – with its leather and rubber factories, a tannery, and chemical research and auxiliary departments, the Batanagar Plant is also equipped with an engineering division for producing modern footwear and tanning machinery. The factory at Bataganj is engaged in the manufacture of leather footwear while the Faridabad plant is producing rubber and textile footwear. To its credit the company has successfully developed the first Mines safety canvas boots in the country.

The actual production of leather footwear in the organised sector of the industry was of the order of about 16 million pairs (1971), as compared to about 15.50 million pairs in the preceding year. The production of rubber footwear during 1971 stood at 42.57 million pairs. In addition, considerable production capacity exists in the small scale sector also.

In pursuance of the Government policy to boost up exports of leather manufactures and footwear, an air freight subsidy at the rate of 50 per cent of the air-freight subject to a maximum of 15 per cent and 10 per cent of the f. o. b. realisation respectively has been granted with effect from February 1, 1971. This subsidy is allowed only if the goods are transported through Indian flag carriers. The export of footwear of all categories has been canalised through the State Trading Corporation of India with effect from November 14, 1972.

EXPORT EFFORT IN HIGH DENSITY POLYETHYLENE

With planned programmes for petrochemical expansion underway, the thermoplastics industry is gradually heading for export in selected areas.

M/s. Polyolefins Industries Ltd. (PIL), Mafatlal Centre, Nariman Point, Bombay, for instance, have been able to earn, over the four years of their operation, a total of Rs. 52.80 million in foreign exchange, largely through exports of high density polyethylene (HDPE) manufactured in their plant at Belapur Road, Thana, (Bombay).

Marketed under the trade name of "Hostalen", this High Density Polyethylene (HDPE), manufactured by PIL is a versatile thermoplastic with an ever-widening scope for industrial applications. It has saved good amount of foreign exchange by import substitution of materials like tin plate, paper, zinc, copper etc. In addition, Hostalen pipes have replaced galvanised iron, stainless steel and copper pipes. It is estimated that besides direct foreign exchange earning, "Hostalen" has to-date led to a saving of Rs. 20 million by way of import substitution.

PIL operates as a part of the petrochemicals complex of the National Organic Chemical Industries Ltd., (NOCIL) of Bombay who are also supplying them with Naphtha based ethylene required for the production of HDPE. The firm's manufacturing capacity has now been increased from 20,000 to 30,000 tonnes per year.

India's plastic production in 1970 was estimated at 97,400 tonnes. Of this, the share of thermoplastic materials like polyethylene, poly-vinyl chloride (PVC), polypropylene, nylon etc. was 90,400 tonnes, while that of thermosetting plastics like phenol-formaldehyde and urea formaldehyde was of the order of 7000 tonnes. Thermoplastics thus constitute over 90 per cent of India's plastics production. The important items are low and high density polyethylene, PVC and polystyrene. The installed thermoplastics production capacity is 28,000 tonnes per annum for low density polyethylene, 20000 tonnes per annum for high density polyethylene, 56,000 tonnes per annum of PVC and 17,500 tonnes for polystyrene. The total installed capacity in the line is thus 121,500 tonnes.

ALUMINIUM PRODUCT EXPORTS UP

The exports of aluminium and its products earned foreign exchange to the tune of Rs. 34.00 million in 1971-72. Among the various aluminium products exported during the year, bare aluminium conductors constituted the major category which earned Rs. 27.70 million (5936 tonnes). Iran with an intake worth Rs. 12.04 million (2574 tonnes) was the major buying country, followed by USSR at Rs. 10.90 million (2245 tonnes). The import values of other countries were : Singapore Rs. 1.50 million (389 tonnes), Yugoslavia Rs. 1.37 million (313 tonnes), Sudan Rs. 0.47 million (122 tonnes) and Sri Lanka Rs. 0.45 million (71 tonnes).

Besides, the export earning of other items was : aluminium foil Rs. 1.72 million (226 tonnes); unwrought aluminium and alloy Rs. 0.60 million (91 tonnes); aluminium bars and rods Rs. 0.91 million (120 tonnes) and aluminium wire Rs. 0.24 million (42 tonnes). In addition to these, aluminium circles, sheets, plates, powder, flakes, tubes, pipes and fittings for tubes and pipes were prominent in the export trade. These items netted foreign exchange worth Rs. 2.80 million (392 tonnes).

M/s. Aluminium Industries Limited, Ceramic Factory Road, Kundara, Kerala, one of the firms engaged in the manufacture and export of aluminium products, exported aluminium bare conductors and other aluminium products to a level of Rs. 3.6 million in 1971-72. Of the firm's total export earning during the year, exports of cables to the USSR accounted for Rs. 2.1 million. In the first five months of 1972-73 (April-August 1972) the firm's foreign exchange earning totalled Rs. 2.6 million.

The firm was established in 1946. The plant at Kundara was commissioned in 1950 with an initial capacity of 1500 tonnes of aluminium conductors per annum. The production of the firm has progressively been stepped up and its annual capacity is of the order of 12000 tonnes of ACSR and aluminium conductors.

Aluminium occupies a primary position in the non-ferrous metal industry in the country. Aluminium production in 1970 was of the order of 161,081 tonnes as against 132,556 tonnes in the preceding year. The installed capacity too rose to 167,668 tonnes in 1970 from 139,000 tonnes in 1969. The total licensed capacity at the end of 1970 was of the order of about 429,850 tonnes.

At present six factories are engaged in production of aluminium and their output during 1971-72 was estimated at about 200,000 tonnes. All these units are in the private sector and are planning to expand their production capacity. Notwithstanding the expansion of production capacity in the private sector, the Government have decided to set up two projects—one at Korba in Madhya Pradesh and the other at Ratnagiri in Maharashtra with annual capacities of 100,000 tonnes and 50,000 tonnes, respectively.

In the range of industries using aluminium, prominent are : electrical industry (conductors, condensors, transformers and motors); transport industry (automobiles, railway coaches and aircrafts); building and construction industry (structurals in the form of sheets and plates for construction of houses, door window handles, latches etc.); packing materials (in the form of foils and collapsible tubes for pharmaceuticals, tea chest lining, cigarette packing, dairy product packings etc.) and castings (for use in automobile industry as engine components) etc.

EXPORT PERFORMANCE AND POTENTIAL

ADVERSE TRADE BALANCE REDUCED

The gap in India's foreign trade was considerably reduced from Rs. 5507.60 million in 1968-69 to Rs. 1688 20 million in 1969-70 and further to Rs. 990.40 million in 1970-71. This was mainly due to the substantial decline in imports of foodgrains and partly an improvement in the country's export trade. During 1971-72, however, the gap widened to Rs. 2054.10 million mainly due to a marked increase in imports of alloy steel, raw cotton, mineral oils, fertilizers and machinery. The trend has happily been reversed since

India had a surplus balance of Rs. 558.20 million in the first five months (April-August) of 1972-73 as compared to the adverse balance of Rs. 1251.60 million in the same period of the previous year. The position is summed up below :—

(Rs. in million)

Year	Imports	Export including re-exports	Balance of trade
1968-69	19086.30	13578.70	—5507.60
1969-70	15821.00	14132.80	—1688 20
1970-71	16342.00	15351.60	— 990.40
1971-72	18120 20	16016.10	—2054.10
April-Aug. 1971	7649.60	6398.00	—1215.60
April-Aug. 1972	7004.50	7562.70	+ 558 20

While the import bill is kept under constant check, all possible efforts are being made to improve the export trade. The measures taken by the Indian Government include supply of imported raw materials, removal of capacity constraints, abolishing or reduction of export duties on specific products, grant of drawback of import and excise duties and improved supply of scarce raw materials.

OUTLOOK FOR LEADING EXPORT PRODUCTS

Over two-fifths of India's export earnings emerged from five commodity groups, namely, jute manufactures, tea, iron ore, mill-made cotton textiles and oil-cakes. Their export value was of the order of Rs. 6765 million in 1971-72 in which year the total export trade was of the order of Rs. 15700 million excluding about Rs. 380 million worth of exports to Bangladesh. Their export value amounted to Rs. 6268 million in 1970-71.

While jute manufactures and tea registered improvement over the previous year's record of Rs. 1904 million and Rs. 1483 million respectively, at Rs. 2653 million and Rs. 1563 million in the following year, the export of iron ore, mill-made cotton textiles and oil-cakes fell from Rs. 1173 million to Rs. 1047 million from Rs. 1154 million to Rs. 1100 million and from Rs. 554 million to Rs. 402 million respectively in the comparable years. The reasons for the setback are not far to seek. In respect of iron ore, the recession in the world steel industry, particularly in Japanese steel industry, had an adverse impact on Indian supply. Added to this were other factors such as transport bottleneck in the eastern sectors of India and the labour trouble in Madras port. In view of the uncertain demand position in Japan, India is trying to improve exports to East Europe as also to explore new markets.

As regards cotton textiles, one of the major factors responsible for the decline in the exports of piece goods and yarn during 1971-72 was the domestic shortage of raw cotton and the foreign exchange problem being faced by India's main markets for yarn, like Burma and Shri Lanka. Prices of cotton as a result of the good crop have improved in the current year (1972-73). To improve quality production, efforts are made to meet the requirements of exporting mills by importing sophisticated items of textile machinery subject to availability of foreign exchange. The scheme for export production of garments under customs bond on the basis of imported cloth has been liberalised so that garment exports can be maximised. Concentrated efforts are also being made to secure bulk orders for cotton fabrics and yarn. Happily the exports for cotton textiles have started picking up during 1972-73.

Oil-cake exports witnessed a setback due to a number of adverse factors, such as the slump in international prices, competition from soyabean meal, a strong demand in the domestic market and high freight rates. Some facilities in the form of freight assistance etc. are already allowed against the export of groundnut extraction. But, as a sizeable expansion in domestic production is the effective solution, efforts are concentrated torwards this end.

PLANS FOR ELECTRONIC EXPORT PROMOTION

The Government of India have recently approved the ambitious Airport Electronic Project at Bombay's Santa Cruz. The project envisages the establishment of an export processing zone in electronics exclusively devoted to export production. It lays emphasis on technology rather than repetitive operation and manufacture rather than pure assembly. The project is expected to account for the bulk of the country's export target of $ 100 million to be attained in the next three to four years.

The growth of the electronic industry in India has been appreciable during the last few years. Today the country has the largest diversified electronics industry in Asia, next only to Japan. The production of electronic equipment and of components increased from about Rs. 300 million in 1964-65 to about Rs. 1800 million in 1970-71. The export earning of the industry was Rs. 45 million in 1971-72. The potential that exists for export in the line can be noticed from the fact that the present world trade in electronics is about \$ 4 billion. Even if the country is able to secure a small percentage of the global trade, its exports could touch a level of Rs. 1,000 million, within the next few years.

The Santa Cruz Project which is organised by the Trade Development Authority of the Ministry of Foreign Trade, is expected to prove a successful forerunner to more such projects elsewhere in the country.

TRENDS IN SPICES PRODUCTION AND EXPORT

India's production of major spices has been on the rise. The pepper output, for instance, rose from 25,500 tonnes in 1969-70 to 26,200 tonnes in 1970-71 and a little more in the following year. Dry ginger was produced to the tune of 20,800 tonnes, 29,600 tonnes and 33,800 tonnes in the respective years. The production of dry chillies amounted to 395,200 tonnes in 1969-70 and 413,300 tonnes in the following year. In respect of turmeric, there was substantial improvement in 1970-71 at 150,700 tonnes over the preceding year's record of 134,400 tonnes; in 1971-72, however, there was a fall at 143,900 tonnes. Cardamom output (in terms of dried and cured variety) rose consistently to 3000 tonnes, 3100 tonnes and 3500 tonnes. Coriander seeds also improved their production from 69,700 tonnes in 1969-70 to 96,000 tonnes in the following year.

From the view point of exports, pepper's offtake was 22,300 tonnes valued at Rs. 169.90 million in 1969-70. In the following year, the export quantum was 179,670 tonnes valued at Rs. 152.48 million while in 1971-72 the quantum was 19,245 tonnes and the value Rs. 148.25 million. In respect of ginger exports, there has been a gradual improvement—from Rs. 12.30 million (1225 tonnes) in 1969-70 to Rs. 26.10 million (3155 tonnes) in 1970-71 and Rs. 27.53 million (6745 tonnes) in the year that followed. So was the case with chillies—from Rs. 9.10 million (2022 tonnes) to Rs. 10.87 million (2075 tonnes) and Rs. 19.22 million (4510 tonnes).

While there was an improvement in the offtake of turmeric in 1970-71 as compared to the preceding year (Rs. 38.35 million against Rs. 36.24 million), the year 1971-72 witnessed a fall in its unit price as evident from the fact that although the quantum exported was more at 14,170 tonnes as against 11,110 tonnes in the preceding year, the value fetched was only Rs. 29.00 million against Rs. 38.35 million.

Cardamom's importance in the spices export trade is next only to that of pepper but its export performance in 1971-72 was not so active as in the preceding year. In these two years the export value was Rs. 82 million and Rs. 113 million respectively. Its unit price also declined as the quantum of export in 1970-71 was 1765 tonnes while in the following year it was 2225 tonnes.

Cumin proved to be a definite growth point in spices; only 230 tonnes at Rs. 1.12 million were exported in 1969-70, the offtake was 2365 tonnes at Rs. 8.26 million in 1970-71 and 7705 tonnes for a value of Rs. 23.59 million in 1971-72.

The development measures being taken by the Government of India for improving spices production in the current plan period are mainly concentrated on pepper and ginger. The major problem of pepper is the senility of the pepper vines and low yields per unit area. A break-through has been achieved in India's pepper varieties with the evolution of high yielding variety, Panniyar I, which gives four times the yield of normal local varieties. The Government have taken up centrally sponsored schemes for stepping up production of ginger. The schemes include establishment of a Central Nursery with multiplication and distribution facilities of hybrid pepper Panniyar I and exotic varieties of ginger; a demonstration scheme for the control of wilt disease of pepper in Kerala, demonstration plots for the rapid development of hybrid pepper and a study on the cost of cultivation of ginger in Kerala. Under the Fifth Five-year plan, the measures outlined above are to be intensified and additionally a package programme on spices is to be taken up in the spices growing states.

RECENT JOINT VENTURE PROPOSALS

In the three months of August-October 1972, six more joint venture proposals have been sanctioned and four approved in principle, by the Government of India. The collaborating countries are Afghanistan, Indonesia, Iran, Ireland, Kenya, Malaysia and Sri Lanka.

In Afghanistan, three ventures were approved for a tannery, an ice plant and a textile mill. The Indian equity participation in the textile mill will be of the order of Rs. 6 million out of a total equity at Rs. 12 million. The project is to come up with the collaboration of M/s. Bharat Commerce and Industries Limited, Parliament Street, New Delhi. A Madras firm, M/s. T. Abdul Waheed and Co. is to assist Afghanistan in the setting up of a tannery whose total equity has been estimated at Rs. 2 million of which the Indian participation would be one-fourth. The ice plant project is to come up with the help of M/s. Alok Udyog Limited, 5, Parliament Street, New Delhi whose equity participation would be Rs. 298,000 out of the total equity of Rs. 575,000.

In Iran, the new proposal approved relates to the manufacture of malleabe castings. M/s. Indian Aluminium Cables Limited, F-40, South Extension, New Delhi, are to supply one-third of the total equity of the project valued at Rs. 4.54 million.

An Indo-Indonesian venture (for the manufacture of engineers' files) has received approval in principle. The Indian counterpart in the project is M/s. Raymond Steel Mills Limited, Bombay.

Indian participation in Ireland has also received approval for the production of steel balls by a Bombay firm, M/s. New Steel Ball Corporation Limited.

One of the leading cycle manufacturers in India, M/s. Atlas Cycle Industries, Sonepat received Government's approval for a collaboration project in Kenya for the production of bicycles and parts. The approval has been received in principle only.

Malaysia where the number of Indian joint venture projects is the maximum, will soon receive Indian assistance for two more projects for the production of fatty acids and glycerine as well as shock absorbers. The former deal is between Malaysia and the Indian firm, M/s. Chemical Construction Company Private Ltd., New Delhi, whose equity participation would be of the order of Rs. 562,000 out of total equity at Rs. 3.7 million. The other project is to come up with the assistance of M/s. Escorts Ltd., Faridabad (Haryana). This proposal was also approved in principle.

Today there are 145 joint ventures abroad with Indian participation in different stages of production. Of these projects, more than 33 have already gone on stream of production.

TRADING ARRANGEMENTS WITH EGYPT

India and the Arab Republic of Egypt have a bilateral balanced trade arrangement under which the trade is conducted through a non-convertible Special Account maintained by the State Bank of India, Bombay. The current trade agreement between the two countries is valid for the period October 1, 1972 – September 30, 1973. The trade volume envisaged on either side in the current trade arrangement is of the order of Rs. 316 million.

Indian exports to Egypt comprise a wide variety of goods such as tea, jute manufactures and engineering goods. Egypt, however, pays for its imports from India mainly with cotton.

Temporary imbalances in the bilateral trade between the two countries are unavoidable. Appropriate steps are taken from time to time with a view to preventing any substantial imbalances having due regard to the need to maintain India's exports. At the end of any trade plan if any imbalances persist, they are to be carried forward for drawing up a balanced trade plan for the subsequent year.

SCANDINAVIAN COUNTRIES

A TRADE REVIEW

Although the total volume of Indo-Scandinavian trade is not much, the Scandinavian countries, namely, Denmark, Finland, Norway and Sweden together have increased their two-way trade with India in 1971-72 as compared to the previous year.

Norway, for instance, imported more from India at Rs. 17.2 million against Rs. 8.8 million in 1970-71

Its exports to India also rose to Rs. 38.4 million from Rs. 20.6 million. India's exports to this country consist mainly of coir manufactures, coffee, bedsheets and jute manufactures while major items of Indian import are fertilizers, paper and paper board, iron and steel, and transport equipment.

India's exports to and imports from Sweden were Rs. 60.30 million and Rs. 126.50 million in 1971-72 compared to Rs. 59.70 million and Rs. 98.0 million respectively for 1970-71. Major items of exports to this country are cotton piecegoods, woollen carpets, readymade garments and handicrafts while main items of imports into India are iron and steel, paper and paper board and machinery and appliances.

In respect of Denmark, Indian exports and imports totalled Rs. 38.70 million and Rs. 31 20 million in 1971-72 as against Rs. 41.30 million and Rs. 34.70 million in the preceding year. Unlike in the case of Norway and Sweden where despite increase in her exports, the balance of trade is adverse to India, trade with Denmark is favourable to India notwithstanding the fact that her exports to that country fell in 1971-72 as compared to the preceding year. India's main exports to Denmark were cotton piecegoods, bedsheets, footwear, jute manufactures and handicrafts while the main items imported are machinery other than electric, medicinal and pharmaceutical products and scientific instruments.

Indian exports to Finland declined by about 25 per cent during 1971-72 in which year the export value was Rs. 4.4 million while imports increased by about 8 per cent to Rs. 25.20 million. The principal items of exports are cotton manufactures, cardamom, coir yarn and handicrafts while major items imported into India include paper and paper boards, newsprint and electrical machinery.

It is well-known that Scandinavian markets are sophisticated and the imported products have to face stiff competition from the point of view of quality, price, delivery schedules and conformity to supplies. Indian capability in supplying goods according to specifications is well established. A very large number of export commodities ranging from raw agricultural produce and minerals to semi-finished and finished products are subject to compulsory quality control and preshipment inspection. In the case of cotton textiles which constitute the major area of exports to Scandinavian countries, strict quality control is exercised by the Textile Committee.

Certain cases have come to the notice of the Government of India regarding the complaints made by importers of Indian textile items. These cases are no doubt few and far between and they would not really affect the general export trade in textiles to that region. But the fact that very rigorous quality control measures are being followed by the Indian Government for textile exports should be a matter of confidence for not only the Scandinavian importers but to all foreign importers.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

WORLD BANK ON INDIAN ECONOMY

The World Bank have recently expressed conviction in the progress made by the Indian economy in the past two decades of planned development. The Bank's conviction was on the basis of a number of "development indicators" that go beyond gross measures of economic growth. A background paper prepared by the Bank referred to the creation of "a large and complex industrial structure" and the laying of the "foundation for accelerated growth in agriculture".

India's national income has doubled since the inception of planned economic development in 1951. While the average life expectancy at birth rose from 32 years to 53, the death rate was reduced from 27 to 16 per thousand. The literacy rate increased from 15 per cent to about 30 per cent. The number of children between the age of 6 and 14 years attending schools went up from 19 million to more than 70 million. The installed electricity capacity increased from 2.3 million Kw. to 17 million Kw. Some 130,000 villages, or one out of every five have electricity. The number of passengers carried by the Indian railways increased from 1280 million to 2330 million a year. The originating tonnage of freight carried by the railways rose from 93 million to 205 million a year. Surface roads have doubled to over 300,000 kilometres. Cargo moving through major ports has also increased from 19 million tonnes to 55 million tonnes.

The country's per capita income in 1970 was roughly Rs. 825 ($ 110) at market prices. The U.S.A. heads the list of developed nations with per capita income at $ 4760 (Rs. 35,700).

FACTS ON TELEVISION INDUSTRY

With the experimental functioning of a television station in Delhi and the recent commissioning of the country's fulfledged station at Bombay, India has joined the select group of countries having the Television facility.

The first indigenous television set was developed in the country in 1969 by the Central Electronics Engineering Research Institute (CEERI) at Pilani in Rajasthan. Based on the know how so developed, production of T.V. sets has picked up and by mid-I970 there were four major units that went into active production. Recently, two more units in the public sector have been licensed to manufacture the sets. The initial capacity for the four units, namely, M/s. J.K. Electronics, M/s. Telerad, M/s. Polestar and M/s. Telestar was 30,000 sets per annum. The additional capacity granted to the two public sector projects, namely, M/s. Bharat Electronics, Bangalore, and the Electronics Corporation of India, Hyderabad, was about 20,000 sets per annum. Additionally, there are further proposals to extend domestic capacity for production in the line.

Although young in age, the T.V. industry in India is indeed comparable with the technical standards attained by the industry elsewhere in the world. In fact, the Indian T.V. sets have certain advantages over those produced abroad. The facilities available in the Indian sets include T.V. Restoration, Noise inventor, auxiliary sync circuits. The picture quality of the Indian TV has proved to be clearer and sharper than that of many sets produced abroad. The better quality of pictures of India-made TV is presumably possible owing to the keener technological care taken in this country. Many foreign TV manufacturers might not be able to take as much care due to the problems of large scale production and higher cost of labour. Again, the Indian make is to specifically suit tropical climates. The after-sales-service provided by the Indian manufacturers is another advantage available to consumers within the country and in the neighbouring countries. The technical competence attained by the Indian know-how reveals gradual improvements in the TV sets manufactured in the country.

In semi-conductor technology, electronic valves, transmitters and integrated circuits (ICS) represent first, second and the third generations. The Electronics Corporation of India, Hyderabad, has developed completely indigenous TV based on transistors. The Pilani Institute displayed true top device 12" portable transistorised sets in polyster ; this represents one stage ahead in the TV manufacture by going into the third generation of the integrated circuit technology. The introduction of this technology in the Indian TV constitutes an improvement on the transistor technology, thereby facilitating the breakthrough not only in the size but also in the price of the indigenous sets. The integrated circuits are again of two types—linear and industrial. The former type is used in radios, TV etc., while the latter is utilised in reckets and other defence purposes. The next step that has to be attempted in India will be a completely integrated circuit based TV.

In the context of TV manufacture in India, the role of small scale sector has been noteworthy. The sector is not only responsible for creating employment opportunities in this line of manufacture and has even improved upon the indigenous and foreign techniques to provide TV sets with the latest circuitory at competitive prices. The special components and materials required by the industry include resistors, cepac, potentiometers, aerials, deflectors etc. All these are produced by the sector on a competitive basis.

The distinction of producing for the first time in the country a television set with an integrated circuit has been achieved by a small scale consortium, M/s. Polestar Electronics Private Limited. Normally electronic valve circuits would have given way to transistor circuitory in the TV technology but this firm has skipped one stage by directly going to the third generation of TV technology.

Another firm M/s. Standard TV has been awarded a shield by the Inventions Promotion Board of India for 1970 in recognition of pioneering work in developing indigenous know-how. The Standard group is already active in the export trade of radio sets.

With the improved indigenous know-how and expanded production the import content which was of the order of 15 per cent till recently came down to 5 per cent now. The overall cost is also expected to come down further in the near future. Even TV tubes are being produced indigenously by the public sector undertaking in Hyderabad.

Though a late entrant, Indian TV industry has thus come up fast enough in line with the sophisticated technology developed abroad and even proved better to have moved swiftly into the most sophisticated and up-to-date realms of technology. Once the TV stations in different parts of the country are commissioned, as proposed, in the course of next few years, the industry in the country is sure to meet the rising domestic demand for TV sets, thus avoiding drain on foreign exchange. In fact, in view of the expected expansion in the industry in the years to come, the policy for import of TV sets has been tightened. Hopefully, the industry will even be able to enter the export market.

POPULARITY OF INDIAN TEA ABROAD

Tea is an important item in India's export trade. It accounts for 10 per cent of the total exports. The country's share in world exports was nearly 33 per cent in 1970. Tea output in the country has been increasing year after year and has reached the all-time peak of about 433 million kg. in 1971; it was about 385 million kg. in 1967. Export earning from tea and mate amounted to Rs. 1563.14 million in 1971-72 as against Rs. 1482.47 million in the preceding year.

A survey of various tea importing countries such as U.S.A., Japan, Western Europe, West Asia and Ireland has been undertaken recently by the Marketing Research Corporation of India under a project for the export potential survey of tea, sponsored by the Government of India and financed by the U.S. AID. The report of the Corporation has been recently submitted to the Government. According to the report, instant tea and tea packets are much in demand in the U.S. market and this opportunity can be well availed of by the Indian tea exporters in view of the quality of their teas. It is estimated that an opportunity for Rs. 50 million worth of sales in the new lines of demand can be utilised by India by 1980.

The same kind of strategy in increasingly shifting over to supplies of instant tea and tea packs from the traditional supply of loose tea would help India to increase exports to the West European markets also.

In the region, the largest tea drinking area in the world, duty free imports into EEC would offer fresh possibilities for India to improve her tea exports. West Germany in this region has preference for Darjeeling and high-grown Nilgiri tea.

As for Japan, production of black tea in that country has been low having declined from 535 tonnes in 1968 to 253 tonnes in 1970. This should be an area for the Indian tea industry to improve exports to Japan. Tea bags account for 40 per cent of the sales of black tea in that country. The target for additional exports of tea from India (over the present level of about 900 tonnes) to Japan has been estimated by the Market Research Corporation at 500 tonnes in 1972, rising gradually to 1500 tonnes in 1975.

West Asia is an important market for Indian tea for a variety of reasons. There has been a spectacular rate of growth of the economy in many of these countries and the demand for tea is persistently growing. Morocco, Libya and Iraq have all shown increased rates of consumption. In this region also India can offer packet tea, tea bags and green tea, on competitive terms. Currently India has a share of about 30 per cent of the total imports into West Asian region madeup mostly of her exports to the Arab Republic of Egypt and Sudan. An additional export of 15 million kg. to the region has been estimated for the next decade, mostly in packet tea resulting in foreign exchange earning not less than Rs. 150 million.

In all, the export plan envisagad by the Market Research Corporation provides for the earning of Rs. 1900 million in foreign exchange from tea by 1980 against the present level of Rs. 1560 million.

The principal competitors of Indian tea in the world market are Sri Lanka, Indonesia, Kenya, Uganda, Tanzania, Malawi, Mozambique and Argentina. In order to meet this competition, the Government of India have abolished the export duty on tea with simultaneous rebate of excise duty on exports based on F.A.S. price. The Tea Board of India is actively engaged in promotional efforts both in terms of *generic* promotion and *uninational* promotion. The object of *generic* promotion is to increase consumption of tea in general in the world market. To this end, the Board participates in eight tea Councils in combination with other tea producing countries and local tea trade. The Councils are in the U.K., U.S.A., Australia, Ireland, West Germany, France, New Zealand and Canada. The *uninational* promotion is for improving and increasing consumption of Indian tea. The Tea Board undertakes this promotional work directly through its five foreign offices located at London, Brussels, Sydney, New York and Cairo. A Tea Trading Corporation has been recently set up in India mainly for the export of blended and packet teas.

Produced mainly in North India, in Dooars and Terai in Bengal, Ranchi in Bihar, Dehradun in Uttar Pradesh and Kangra and Mandi in Himachal Pradesh, Green tea production has been on the rise from 5.12 million kg. in 1967 to 7.35 million kg. in 1968 and over 8 million kg. in the following two years. Its export trade was of the order of 3.75 million kg. in 1971 valued at Rs. 22.62 million.

The bulk of green tea is exported to Afghanistan. In 1971 the share of that country was as much as 2.46 million kg. In recent years, Morocco, Japan and U.S.A. have emerged as other important markets for the tea. Next to Afghanistan, Morocco was the important market in 1971 at 1.13 million kg.

FOODGRAINS PRODUCTION

India's foodgrains production in 1971-72 was 104.68 million tonnes, 7.32 million tonnes less than the target set for the year. During 1972, the availability of grains for human consumption out of internal production worked out to 91.6 million tonnes. The shortfall in the availability from internal production is being met from larger releases from stocks held by Government. In the first nine months of 1972 while internal procurement provided 6.7 million tonnes, public distribution came to 8.4 million tonnes.

Despite unprecedented drought condition in 1971 and in the current year, the production of foodgrains would not be less than 100 mlllion tonnes this year, according to the Minister of State for Agriculture. No doubt, the prices of bajra and maize have gone up but the rise in wheat prices is only marginal. In 1971 wheat production was estimated at 26 million tonnes and in the current year wheat production might go up to 30 million tonnes.

A marginal foodgrains import to tide over difficulties has been contemplated by Government which in no way is inconsistent with the policy of self-reliance. The present need to import foodgrains is only a temporary phase in the economy and the situation is bound to change, according to the Minister.

As regards the buffer stocks position, it was 5.4 million tonnes on October 1, 1972. Although it was envisaged to create buffer stocks of 5 million tonnes of foodgrains by 1974, already there is 7 million tonnes of grains in stock. In fact, Government have taken steps by which the stocks could be increased beyond 7 million tonnes.

The emergency food production programme launched by Government with an estimated investment of Rs. 1500 million lays emphasis among others on lift irrigation and sinking tubewells.

FOUR PUBLIC SECTOR PROJECTS APPROVED

The recently constituted Public Investment Board approved four proposals for expansion of important public sector undertakings. One of the proposals relates to the expansion of Nangal Fertilizers Project which is to eliminate the use of electricity for ammonia production. This project is to manufacture 900 tonnes of ammonia with the help of high sulphur heavy stock to be finally drawn from the proposed North-West Refinery and produce 286,000 tonnes of calcium ammonium nitrate and 297,000 tonnes of urea. The investment for the project is to be Rs. 760 million of which about Rs. 390 million will be the foreign exchange component.

Another proposal approved relates to the manufacture of 80,000 tonnes of low density polyethylene, utilising ethylene from the naphtha cracker at Baroda. The proposed project is expected to cost Rs. 336 million of which the foreign exchange component would be Rs. 136 million.

The third proposal approved by the Investment Board is for the expansion of the Bokaro Steel Project from 4 million tonnes to 4.75 million tonnes capacity per annum. Hot rolled sheets and slit coils are to be major products of the proposed expansion scheme is likely to involve a capital investment of Rs. 574 million with a foreign exchange component of about Rs. 58 million.

The fourth proposal is for opening up new open cast copper mines at Chandmani to produce about 500 tonnes of copper ore per day, to be concentrated and smelted at Khetri.

The Public Investment Board was constituted in October this year as a special highpowered body to speed up scrutiny and approval of proposals for investment in public sector.

INDIA'S FOREST WEALTH

Of India's total land area, forests cover more than 75 million hectares which constitute about 23 per cent of the entire land area. Till now, about 1.1 million hectares of man-made forests in different parts of the country have been raised. The wealth of Indian forests is evident from the fact that about 15,000 different spices of plants, about 2000 birds, 500 mammals and about 30,000 insect species and a large variety of fish are found.

The National Forest Policy lays down that at least 33 per cent of the total land area should be under forests for the purpose of preserving envoirnment, preventing floods and providing timber, fuel wood and other forest products.

SEED PROCESSING PLANT SET UP

A modern seed processing plant has been recently set up at Delhi by the National Seeds Corporation (NSC). The plants' seed handling capacity has been placed at 12 tonnes of seeds per day per shift of eight hours. The plant has been set up in the campus of the Indian Agricultural Research Institute with entirely indigenously manufactured equipment.

The plant has facilities of a continuous cycle of seed processing in a systematic manner like drying, scalping, cleaning and grading and upgrading the seeds of different crops in specialised machines. It can also perform complex operations like treating the seeds of different crops chemically to increase their storage life and can also weigh and seal the seeds in bags automatically. The plant has the capacity of six storage bins which would enable storage of processed or semi-processed seeds. Complete operation and control of the plant could be done by a single operator.

MOTEL FOR TOURISTS

Third in the India Tourism Development Corporation's (ITDC) chain of motels, Khajuraho Motel was recently inaugurated. The motel was built as a part of ITDC's nationwide effort to provide comfortable and economic accommodation to tourists. The motel consists of 48 double rooms and 20 of these are air-conditioned. It has the facility of an air conditioned restaurant and bar, a lounge and a conference room. Spread over 4½ acres, the motel has a garden and parking area. The ITDC's tourists cars are available and a booking office of the Indian Airlines is also located at the Motel.

In 1971, nearly 60,000 tourists visited Khajuraho including 4000 tourists from abroad. This year, up to October, nearly 5000 foreign tourists had visited Khajuraho.

ITDC's first motel was opened recently in Hassan in Mysore and the second at Jammu. The Corporation have plans to construct more motels, travellers' lodges and restaurants in many parts of the country to serve motorists and other travellers.

PROGRESS IN OIL-WELL DRILLING

The Oil and Natural Gas Commission had drilled 982 wells in the country by the end of September, 1972, as against 930 wells drilled till the end of December, 1971.

Out of these completed wells, 597 indicated the presence of hydro-carbons, 266 turned out to be dry, 26 were water injection wells, The remaining 93 had yet to be tested fully.

The total number of structures on which these wells had been drilled was 110. Of these, 71 were in Gujarat and 12 in Assam. Besides 6 structures had been drilled in Tamil Nadu, followed by 5 each in Rajasthan and Himachal Pradesh and Punjab together. Structures in UP, Pondicherry, Bihar, West, Bengal, Jammu and Kashmir and Tripura had also been tested.

Adding to the effort to maximize crude oil production in the country, M/s. Oil India had also drilled a total of 297 development wells and 15 exploratory wells till the end of December, 1971.

Production of crude oil amounted to 7.2 million tonnes in 1971. The repective shares of Oil and Natural Gas Commission and M/s. Oil India are estimated at 4.06 million tonnes and 3.14 million tonnes. By 1973-74 ONGC expects to raise its production to 5.5 million tonnes. Oil India's production is also likely to go up substantially during the course of the year.

PROGRESS IN COPPER PRODUCTION

With the mining work undertaken so far and plan facilities that exist or are being set up by the Hindustan Copper Limited, a Government of India enterprise, it is expected that India's production of copper will increase from 9500 tonnes now to 20,000 tonnes per annum by the end of the Fourth Five-year plan period (1973-74). It is also envisaged that the production will be stepped up to reach a level of about 57,000 tonnes by the end of the Fith Five-Year Plan period. In ten years from now, the production should be within the range of 75,000 tonnes to 80,000 tonnes per year.

At Khetri (Rajasthan), the total mine development during 1971-72 was of the order of 58,000 cubic metres as against 22,000 cubic metres in the preceding year. The trial operations of the Concentrator Plant at Khetri are expected to start soon. The Khetri Project is based on two mines, the Khetri mine and Kolihan mine.

At the Rakha project, Bihar, the concentrator plant is to go on stream by early 1974 for production of 1000 tonnes per day. Another project of the Hindustan Copper Limited at Daribo is in advanced stage of construction. A detailed project report is to be soon submitted to Government on the Agnigundala project.

The Government of India took over the management of the Indian Copper Corporation, Ghatsila. Since the takeover, the old Reverberatory Furnace at Ghatsila which was closed down consequent upon the commissioning of the Flash Smelter Plant in December 1971, has been put back into operation.

The current production of blister copper is now averaging 1100 tonnes per month as against the average of 800 tonnes per month during 1971.

Expansion programmes both in respect of mine and concentration capacity have been taken up. A scheme involving an investment of about Rs. 210 million for the expansion of Surda mine is under oonsideration. The scheme envisages lowering of cut off grade which no doubt will mean high mining costs but is essential from the national point of view for conserving the scarce mineral. A new Concentrator plant of 200 tonnes per day capacity costing about Rs. 27.5 million is being set up at the Mosaboni Mines. The take over of the Indian Copper Corpoation will ensure the speediest and integrated development of the Singhbhum belt which is one of the most valuable copper areas in the country.

The country is presently deficient in copper production and has to depend on imports to meet her requirements. During 1971-72, 50,710 tonnes of copper and alloys valued at Rs. 431.80 million were imported. Import of worked copper and alloys was of the order of 5462 tonnes at about Rs. 80 million. The total import bill for these items during 1970-71 stood at Rs. 602 million.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

CARRIER FOR ELECTROSTATIC COPYING MACHINES

A product carrier (toner) for electrostatic copying machines has been developed by the Solid State Physics Laboratory (SPL), New Delhi.

Carriers (Toners) are used alongwith a dye in electrostatic photocopying machines to develop the latent image formed on the sensitised photo conductive plate to produce prints. Photocopying machines are presently being manufactured in the country. Besides, a large number of imported zero machines are in operation in the country. As such, the demand for carriers is likely to be quite considerable.

The developed carriers (toners) are in negative and positive. At present, these are being imported. The carriers consist of a specific size range of a chemical which is indigenously available. The material has been tested successfully for about 3 months and the prints obtained have been found satisfactory. The resolution of the prints made by using these carriers was found comparable with those made with imported carriers. More than 500 prints can be taken using the same carriers.

Equipment required is of a simple type and available indigenously. The cost of production of these carriers as estimated by the SPL is considerably lower as compared to the impored ones.

CYCLIZED RUBBER DEVELOPED

A process for producing cyclized rubber has been recently developed by the Defence Research Laboratory (Materials) Kanpur.

A number of useful products can be made based on cyclized rubber. Some of these are adhesives based on cyclized rubber which give better bonding strength than other conventional adhesives. The drying time of these adhesives is reasonably quick and it sets into a tough coherent thermoplastic film which can also be made to cure by addition of curing agents at room temperature and also at elevated temperature resulting in resistance of the bonds to solvents and water.

Surface coating agent based on cyclized rubber has been found to be superior to other surface coating agents with respect to coat, hardness of the film, abrasion resistance, resistance to acids, alkalies water and solvents and atmospheric corrosion. Pigmented lacquers/paints based on cyclized rubber are very quick setting and impart acid, alkalies and most of solvent resistant film. They inhibit corrosion also. Printing inks prepared by using cyclized rubber are resistant to water, acid and alkalies.

Equipment and machinery required for production of cyclized rubber are : Mixer M. S., two Reactors (lead lines), Vessel (lead lined), two condensers MS, Steaming washing tank (stainless steel), washing tank, roller mills, grinder pumps etc.

Raw materials required in the process are available indigenously.

SEALING COMPOUND

A sealing compound to be used in flange joints of engines has been developed by the Jiwaji Research Laboratory, Detachment Defence Research Laboratory (Materials), Gwalior, M.P.

The compound prepared by the laboratory was tried to ascertain its suitability. It has been found suitable for use as sealant for flange joints of engines. Use of indigenous sealant will eliminate dependance on foreign source and make the country self-sufficient in this respect. The process has been studied on a bench scale. The product is being prepared on a limited scale by Research and Development Organisation, Ministry of Defence, to partly meet the requirements of the Army.

Sealants are used in flange joints of engines developing high horse power like those of tanks, cars, trucks, tractors etc. to make the joints liquid tight against escape of mineral oil, steam and hot water and the temperatures attained normally of the order of 100° C. Sealing compounds meeting such a requirement are not being produced in the country. At present, imported products like Hyperix Compound and Flertex compound are used in the country to meet indigenous requirement which is estimated at 2000 kgs. per annum.

Raw Materials required in the production of sealing compound are : Sodium silicate, glycerine, borax; aluminium rosinate; rosin; rosin oil; methyl ethyl ketone and rubber solution.

Plant and machinery required are : three roll paint mill; two mild steel kettles; one 3 HP squirrel cage explosion proof motor, a can sealer and a grinder. All these are available indigenously.

WOOLLEN INDUSTRY

A REVIEW

The export earning of India's woollen industry in 1971-72 at Rs. 345.20 million marks the highest ever level recorded. The export growth is a result of consistent efforts to turn the available traditional weaving skills into a modern industry, comparable internationally. The industry has come of age having two vital sectors in its infrastructure—organised sector and decentralised sector.

In the organised sector of the industry, the number of units has crossed the hundred mark. This sector comprises composite units (with both spinning and weaving facility), spinning units, combing units and carpet units. With 68 spinning units and 39 composite units accounting for installed capacities of 245,940 spindles and about 3800 looms, the industry is concentrated mainly in the Punjab and Maharashtra States of the country. In Punjab, there are in all 40 units. Of these, 21 are composite mills and 19 are spinning mills. Of the total 19 units in Maharashtra, 10 are spinning mills and 9 are the composite mills. Besides, in Haryana, there are 10 units of which 9 are spinning mills and 1 is a composite mill. Uttar Pradesh also has 8 units comprising 7 spinning mills and 1 composite mill. In addition to these units, woollen mills are also established in other States like Bihar, Delhi, Himachal Pradesh, Gujarat, Jammu and Kashmir, Mysore, Madhya Pradesh, Rajasthan and West Bengal.

Of the total installed capacity of spindles at 245,940 numbers in 1971, 145934 numbers are for worsted, 66260 numbers for woollen, 22565 numbers for shoddy and 11185 numbers for union cloth and others. The number of powerlooms employed was of the order of 3800 numbers in 1971. Of these, 1940 power looms are employed in the decentralised sector of the industry.

The decentralised sector comprises hosiery units and powerloom units and all these are in the private sector. Besides, a large number of small units engaged in the production of hadicrafts, such as hand knotted woollen carpets, namdahs, druggests, hand embroidered shawls etc. are included in this sector. Additionally, one more sector is coming up in recent years - the woollen readymade garments sector—comprising medium and small scale units.

The organised sector is mainly engaged in the production of fabrics and other woollen textiles while the decentralised sector primarily produces hosiery and knitwear, shawls, hand knotted woollen carpets, numdahs, druggets and hand-embroidered shawls. The production of the industry in 1971 was recorded at 12.85 million kgs of wool tops, 20.16 million kgs of yarn and 14.03 million metres of worsted and mixed fabrics. In 1970, the break up of production was 13.43 million metres of wearables and 4.32 million kgs of non-wearables. Variety-wise, the production during this year was : gaberdine 0.12 million metres; serge and suitings 4.58 million metres; panama and tropicals 0.42 million metres; shawls and lohis 0.90 million metres; union cloth and mixed fabrics 5.33 million metres; blazers, tweeds and vellours 1.35 million metres and other wearables 0.72 million metres.

India possesses 42 million sheep and ranks fifth among the major sheep rearing countries of the world. Average yield per Indian sheep is only 1.9 lbs as compared to 9.0 lbs per Australian sheep. Indigenous wool production in 1971 was of the order of 34.55 million kgs.

In order to improve the productivity and quality of wool, many positive steps have been taken in the past few years. A Central Sheep and Wool Research Institute was set up in Rajasthan for conducting research and experiments on Indian sheep. Besides, two sub-stations of the institute have been set up at Kulu in Himachal Pradesh and at Kodaikanal in Tamil Nadu. At present, there are in all 32 sheep breeding farms, 503 sheep and wool extension centres and 6 sheep shearing, wool grading and marketing centres in the country. During the Fourth Plan, it is envisaged to set up additionally 13 sheep breeding farms, 50 sheep and wool extension centres, and 5 sheep shearing, wool grading and marketing centres. With the aim to improve productivity and quality of wool of Indian sheep, various scientific experiments like cross breeding of Indian sheep with imported merino sheep, spanish sheep, polworth and rambouillet sheep and artificial insemination were carried out at various research institutes. A comprehensive Sheep and Wool Development Programme was taken up in different States. As a part of this programme, import of sheep from USSR, USA and other countries was envisaged during the Fourth Plan. All these efforts are directly connected with the development of the industry as also towards

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improving export earning through the supply of quality products in the overseas markets.

Woollen industry is one of those few industries of the country which have broadened their production base and diversified their product range. Indian woollen goods find ready demand in the overseas markets. The export earning which was at a value of Rs. 130 million in 1961-62, rose to a record level of Rs. 345 million in 1971-72. During this decade, export increase of 165 per cent was achieved. This reveals that an annual rate of growth of 16.5 per cent was achieved by the industry. As compared to an annual rate of growth of 7.5 per cent of the total exports of the country, the export performance of the industry is indeed noteworthy. The foreign exchange earning of the industry has increased from year to year - Rs. 215 million in 1967-68, Rs. 262.5 million in 1968-69, Rs. 264.5 million in 1969-70, Rs. 325.7 million in 1970-71 and Rs. 345 million in 1971-72

India's woollen hosiery is receiving wide popularity in the overseas markets in recent years. This non-traditional variety recorded foreign exchange earning of as much as Rs. 137.70 million in 1971-72. In fact, its exports rose from Rs. 5.91 million in 1963-64 to Rs. 13.69 million in 1965-66 and increased sharply to Rs. 62.20 million in 1968-69. After recording a fall at Rs. 53.75 million in 1969-70, the exports shot up to Rs. 121.5 million and reached the record level (Rs. 137.70 million) in the following year. U.S.S.R. with an intake of Rs. 113.19 million was the leading buyer in 1971-72 absorbing over 82 per cent of the total exports. The next important destination was Czechoslovakia whose total import was of the order of Rs. 8.29 million, followed by Libya at Rs. 2.79 million; other markets imported worth Rs. 13.21 million. Hong Kong Kenya, South Yemen Republic and Zambia were among the other markets.

Carpets, druggets and numdahs constitute the second important category of exports in 1971-72 which earned Rs. 123.5 million. The export value of this category was : Rs. 96.60 million in 1967-68; Rs. 106.46 million in 1968-69; Rs. 113.29 million in 1969-70; Rs. 104.45 million in 1970-71.

Besides these important categories, the other varieties too registered a sizeable improvement in exports. Woollen/worsted and mixed fabric exports incseased from Rs. 18.36 million in 1967-68 to Rs. 22.61 million in 1971-72; shawls and lohis rose from Rs. 0.51 million to Rs. 3.09 million and woollen blankets improved from Rs. 0.98 million to Rs. 2.31 million. Wool tops, shoddy wool and waste and raw wool exports declined during this period.

The export figures during the last five years reveal that constant uptrend was witnessed by non-traditional categories such as fabrics, hosiery and ready-made garments. The total export of this category jumped from Rs. 60.00 million in 1967-68 to Rs. 185.8 million in 1971-72.

East European countries are the largest recipients of woollen hosiery. In the recent years, Afro-Asian countries are also emerging as prominent importers. The items exported in this category are cardigans, pullovers, sweaters, jerseys, stockings and vests, socks and gloves and ballacllava caps. Besides, readymade garments are also getting popular abroad.

In recent years, many woollen products have come to stand comparison with the quality fabrics available in world markets. Strict quality control is an in-built part of the entire manufacturing process and no pains are spared in meeting the exacting specifications in various processes. Lately, four leading knitwear units in Punjab, engaged in the production and exports of woollen goods, have been granted licences for the use of woolmark - the international symbol for quality pure wool products. Now the woollen goods manufactured by these units could be considered on par with the quality products manufactured in the UK, Australia etc. Besides the four firms licensed, there are several other firms on the list and as soon as their quality control arrangements get completed as per the woolmark requirements, licences would be issued to them. ☐

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SPUN SILK YARN TO JAPAN

The first ever consignment of Indian mulberry spun silk yarn is poised for shipment to Japan. The consignment of 220 bales (11 tonnes) is valued at Rs. 1.14 million. Hopefully, this will herald India's firm entry into the world silk market.

According to the trade enquiries being received by some leading Indian exporters, there appears to be a great demand for spun silk yarn in Japan and Italy. Demand for Indian supply is expected to further go up once its quality and price are confirmed against international standards. The above bulk order from a leading silk manufacturing mill of Japan was secured by M/s. Raja Silk House, Bangalore, who are one of the major manufacturers and exporters of silk fabrics.

The production of mulberry silk–waste, which constitutes the sole raw material for spun silk yarn, was of the order of 838 tonnes in 1971 out of which 633 tonnes were exported to different countries. The balance of about 200 tonnes was locally processed and converted into about 63 tonnes of spun silk yarn. Production of non-mulberry silk–waste, which comes under export ban owing to high domestic demand, came to 246 tonnes in the year.

There are two public sector spun silk mills located at Channapatna (Mysore) and Jagi Road (Assam), with installed spindleage of 7,500 and 3,000 respectively. A third spun silk mill with 3,000 spindles, just set up in Bhagalpur (Bihar), is to go into production shortly.

The spun silk mills consume about one-third of the country's total silk-waste production and on an average, about two-thirds of the country's silk-waste is exported annually.

If the demand for Indian spun silks should pick up as a consequence of the trial export order received, it will open up facilities for the Indian spun silk units to expand production and thus ensure export of spun silk instead of silk-waste as at present, according to the Central Silk Board, 95-B, Marine Drive, Bombay, which can be contacted for further details.

BUSINESS DEALS AT ASIAN FAIR

In the first 24 days since inauguration of the Asian Trade Fair on November 3, 1972, India transacted export business worth Rs. 230 million. The target business to be transacted during the Fair period is set at Rs. 500 million and is likely to be exceeded.

The major share of the business secured has been from the Soviet Union. The other countries that have finalised deals are Czechoslovakia, the Federal Republic of Germany, the German Democratic Republic, Hungary, Poland, Sweden and the United States. The items to be exported from India include bicycles, machine parts, shirts, tools, tension bars, mica, steel files, water geysers and other manufactured goods.

Fifteen contracts signed with the Soviet Union amounted to Rs. 150 million placing that country on top among foreign participants who have entered into maximum business deals at the Fair. The Indian readymade garments industry was a major gainer in the deals with USSR. Indian firms have also committed to supply surgical instruments and consumer goods.

On a single day, November 28, 1972, Indian participants in the Fair netted export orders worth about Rs. 17.9 million. The largest number of orders bagged on the day was from Czechoslovakia (Rs. 15.8 million). In two agreements signed with M/s. Mercuria of Czechoslovakia, an Indian firm M/s. HES Ltd., Jogeshwari Estate, S. V. Road, Bombay-60 is to export clocks and wall clocks worth Rs. 2.5 million and M/s. Gedore Tools, Golf Links, New Delhi is to supply handtools worth Rs. 6.5 million to that country. M/s. Ferromat, another Czech firm concluded a contract with a Calcutta firm M/s. Kesoram Foundries for the supply of breaking blocks for wagons worth Rs. 6 million. It signed another deal with the Heavy Engineering Corporation, Ranchi, for the supply of pipes worth Rs. 0.8 million to that country.

From Poland, M/s. Hindustan Machine Tools Ltd., Bangalore, bagged an order worth Rs. 20 million for the supply of 200 machine tools. The Indian company has been receiving firm enquiries for its products displayed at the Fair from countries like Canada, USA, Hungary and Czechoslovakia.

The Trade Development Authority which has earlier received orders from U.S.A. for bicycle chains and from Sweden for fencing components, have further concluded a business deal worth Rs. 2 million for supply of industrial fasteners to a firm in U.S.A. Another export order for Rs. 100,000 worth of handtools has also been received by the Authority from a Canadian buyer.

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EXPORT TRADE IN STEEL TUBES AND PIPES

Tubes, pipes and fittings made of iron or steel were exported by India to earn Rs. 107.97 million during 1971-72. Rain water pipes, soil pipes, seamless tubes and pipes, galvanised and non–galvanised tubes and pipes, tubes and pipes of cast iron base are among the varieties exported.

One of the leading exporters in the line, M/s. Indian Tube Company Ltd., 41, Chowringhee Road, Calcutta–16, succeeded in supplying substantial tonnages even to the advanced countries of the world such as U.K., Australia and United States. The firm's export earning up to March 1972 was of the order of Rs. 105 million.

The company's annual capacity for production is about 250,000 tonnes, in sizes ranging from 15 to 200 mm., nominal bore, with a maximum outside diametre of 219.10 mm. The company's works at Jamshedpur comprise of two continuous weld mills for black and galvanised commercial quality tubes, an electric resistance weld mill for pressure and precision tubes, a cold rolling mill for cold rolled steel strip, a seamless mill for tubes for high pressure and general mechanical applications. They are perhaps the only manufacturer in India to use the hot continuous weld process known as "Fretz Moon" for the production of commercial quality steel tubes. The company is a leading supplier to Indian Railways of ERW tubes for locomotive boilers and bracket arms for electric traction.

A wide range of the tubes and rolled steel sheets manufactured by the company are used for agriculture, industry, defence factories, shock absorbers, bicycles, typewriters and gas lamps.

TRANSISTOR SETS TO HONG KONG

Transistor radio receiver sets made in India have come to establish their reputation in the foreign markets. In 1971-72, their export earning was of the order of Rs. 17.18 million. Nearly 210,000 sets were supplied abroad of which the bulk was received by the Sudan (92,820 sets) at a value of Rs. 8.5 million. U.K. was the next best buyer at Rs. 4.8 million (67,595 sets). The Congo People's Republic bought nearly 14,100 sets at about Rs. 0.96 million. Ireland, Sweden, Syria, Mauritius, Iraq, Czechoslovakia, Ethiopia and Congo Democratic Republic were the other major buyers. The share of transistor radio exports in the total offtake of radio broadcast receivers (Rs. 21.69 million) is substantial.

Recently, a Gujarat firm, M/s. Hindustan Conductors, Nadiad bagged sizeable orders from Hong Kong for the supply of transistors. Out of the first order, woth Rs. 2.8 million, the first consignment has already been shipped. The firm has also effected supplies to West Germany and Denmark. During the period April-August 1972 nearly 40 per cent of the company's output is estimated to have been exported.

The large scale sector in India has a licensed capacity of 3 million radio receiver sets per year (1971). Actual production was nearly 2 million sets. Besides, a number of small scale units are also engaged in this line of manufacture.

STEEL EXPORTS TO SOUTH KOREA

M/s. Hindustan Steel Limited (HSL), the State owned undertaking engaged in the manufacture and exports of steel have recently concluded a contract with South Korea for the supply of 16,000 tonnes of steel. The contract was bagged by the Indian firm in the face of stiff competition from Japanese and Canadian firms who were the traditional suppliers of steel to the South Korean market. This is the first time that India would be supplying steel in such a big quantity to that country. The shipments are to be effected from May 1973.

M/s. Hindustan Steel Limited (HSL) achieved an all time high record output of saleable steel at Rs. 1.36 million tonnes in the first six months of 1972-73 (April-September 1972) registering an increase of 0.13 million tonnes over the production during the corresponding period of the preceding year. Of this, the production achieved by the three units of HSL was : Bhilai Steel Plant 0.83 million tonnes, Rourkela Plant 0.33 million tonnes and the Durgapur plant 0.19 million tonnes. The total production of saleable steel of these plants and of Tata Iron Steel Company (TISCO) and the Indian Iron and Stee Company (IISCO) in the first six months of 1972-73 (April-September 1972) was recorded at 2.19 million tonnes as against 2.10 million tonnes in the corresponding period of the previous year.

India's exports of iron and steel during 1971-72 were valued at Rs. 407.72 million. In fact, the exports in 1970-71, were as much as Rs. 906.17 million. During 1971-72, iron and steel bars, rods, angles, strips and sections constituted the major category of export at over Rs. 108.00 million. USSR, Sudan, Iran, Nepal, USA, Arab Republic of Egypt, Thailand, Canada, Singapore, Syria etc. were the prominent destinations for these items. Tubes, pipes and fittings of iron and steel was the next important line of export which earned a little less than Rs. 108.00 million. Zambia, Tanzania Republic, Burma, Czechoslovakia, Sudan, USA, Saudi Arabia, Iran, Kenya, Kuwait, Hong Kong etc. were the main importing markets. Pig iron, sponge iron, iron and steel powders, and shot and ferro alloys fetched Rs. 97.41 million while rails and railway track construction materials of iron and steel netted Rs. 88.22 million. Besides, the export value of other items was : Rs. 2.89 million for iron and steel castings and forgings (unworked); Rs. 1.90 million for iron and steel wire and Rs. 1.02 million for universals, plates and sheets of iron and steel. In addition to these, ingots and other primary forms (including blanks for tubes and pipes) and hoop and strips of iron and steel were the other items of exports during the year.

LOCKS AND PADLOCKS ON EXPORT STREAM

Indian exports of locksmith wares during 1971-72 amounted to Rs. 5.40 million (385,882 kgs.) as against Rs. 2.29 million (654,673 kgs.) in the preceding year, registering an improvement of over Rs. 3 million. Locks, keys etc. were the major export items in this group. These earned as much as Rs. 4.00 million (264,240 kgs.) during 1971-72 as against Rs. 1.79 million (147,403 kgs.) in the preceding year. German Democratic Republic was the leading buyer having imported worth Rs. 1.29 million (63,819 kgs.), followed by Federal Republic of Germany at Rs. 0.64 million (41,280 kgs.), Yugoslavia at Rs. 0.40 million (20,447 kgs.), Czechoslovakia at Rs. 0.22 million (7408 kgs.), Hungary at Rs. 0.19 million (21,837 kgs.), Kenya at Rs. 0.15 million (9111 kgs.), Saudi Arabia at Rs. 0.11 million (7641 kgs.) and UK at Rs. 0.10 million (6401 kgs.). Iran, Dubai, Jordan, Malawi, Kuwait, Malaysia, Nigeria, South Yemen Republic, Qatar, Uganda, Syria, Sudan, Thailand, USA, Zambia etc. were the other prominent markets.

Padlocks, the second important category, fetched foreign exchange to the tune of Rs. 1.31 million (121,642 kgs.) in 1971-72 as against Rs. 0.51 million (50,727 kgs). German Democratic Republic again topped the list of importing countries and absorbed as much as Rs. 0.83 million (63,178 kgs.). Federal Republic of Germany too retained her position as the second importing market having imported worth Rs. 0.18 million (28596 kgs.). Besides these two, U.K., U.S.A., Malaysia, Thailand, Syria, Norway, Canada etc. were the other destinations.

Adding to the export effort of the lock and key manufacturing sector of the country, M/s. Indian Implements Manufacturing Company, Aligarh, secured an export order valued at Rs. 1,80,000 for supply of padlocks to the German Democratic Republic. The order was booked at the Third Asian Trade Fair 1972 currently on in New Delhi. The first consignment of 11,500 padlocks worth Rs. 45,000 has already been air-freighted by the GDR authorities by a chartered plane. A further consignment valued at Rs. 35,000 is being air-freighted very soon.

In addition to this order, further contracts worth Rs. 4.5 million are under negotiation with the GDR authorities.

EXPORT PERFORMANCE AND POTENTIAL

TOWARDS SELF RELIANCE IN EXPORT TRADE

"Exports can only rise if the pace of industrial production is adequate to ensure an increasing exportable surplus" stated Mr. K. T. Satarawala of the Ministry of Foreign Trade while addressing the Eighth Annual General Meeting of the Indian Institute of Foreign Trade. "In the long run, export progress depends on the self reliant overall growth of the economy. Efficient production coupled with competent selling is the quintessence of export promotion".

India's export trade has already covered some ground in respect of efficient production and selling as well as in ancillary activities such as, product adaptation and diversification, market identification and marketing expertise. The country's efforts towards promoting the share of non-traditional exports received a measure of success. Besides physical exports, Indian business circles have made a mark as proven exporters of technical know-how and consultancy services. Indian assistance is sought for undertaking turnkey projects and joint industrial ventures. "While the co-developing countries appreciate the relative merit of the intermediate technology available from India, the advanced countries have in their own interest come to realise the need to vacate labour intensive lines of production in favour of countries like ours." These achievements should not lead, however, to a complacency for they merely represent some sparks of success. What is of importance would be to build a strong, sustained, self propelling industrial base, Mr. Satarawala added.

Indias's export value at Rs. 16,070 million in 1971-72 represented a growth rate of 4.6 per cent over the preceding year as against the Fourth Plan annual target of 7 per cent, the import bill having amounted to about 11 per cent at Rs. 18,120 million. The trade deficit thus widended to Rs. 2056 million as against Rs. 990 million. Among the difficulties that affected the export effort were the serious constraints on the supply side such as shortage of basic raw materials like steel and slow growth in the output of commercial crops as also the worst ever sluggish trend in global trade and an unprecedented world monetary instability on the demand side. The significance of export promotion would become more evident in the present context of aid-weariness and the country's objectives of minimum dependence on external assistance and self-reliance. The debt service obligations in India are increasing on an average of about 14 per cent per year while the anticipated annual growth rate is only 7 per cent. About 30 per cent of the country's export earnings is having to be earmarked for debt servicing including amortization and interest charges. Again nearly three-fourths of the aid received annually is to be given back in terms of repayment. Out of $ 800 million received as aid on an average per year, repayment obligations are already of the order of $ 625 million.

Referring to the international monetary instability the Ministry's official stated that there would be a need for reshaping the world monetary system in such a way as to provide smooth adjustments in exchange rates for all the currencies including the so called reserve currencies. UNCTAD III passed a resolution urging for broadbased consultations, with the active participation of the developing countries, in any further evolution of the international monetary system. It would be heartening to note that "the Group of 10" had been replaced by a "Committee of 20" as approved by the IMF Board of Governors in July 1972 and that India would be one of the developing countries represented in the committee.

Mentioning the moves for introducing a free trade area in Western Europe, it was recalled that three members will be added to the European Economic Community from January 1973 while the other countries in the region will have entered into some free trade arrangements with EEC. India has traditionally been a major trading partner of the United Kingdom. If new tariff rates are imposed against Indian products by that country without compensation elsewhere, the trade which has been developed between the two countries for over a century is bound to receive a setback.

The Indian effort during the last decade to forge a commercial cooperation agreement with the EEC have not received serious attention from the Community's member countries. It is to be hoped that some decision would be taken for negotiating fromal discussions with the EEC countries concerned so that a semi-permanent or a permanent solution can be found to the trading problems of India with the enlarged community before the transitional period of one year allowed to the United Kingdom ends in December 1973.

The Indian Institute of Foreign Trade has been responsive to various problem-dimensions of international trade. Their work includes a detailed assessment in the trade expansion possibilities arising out of the Generalised System of Preferences, organising Market Orientation Tours for the benefit of medium and small scale exporters, undertaking surveys on the basis of which some of the governmental policies are framed and training of export management personnel at various levels. The Market Orientation Tours organised by the Institute during 1970-72 were able to secure export orders worth Rs. 70 million, appoint 125 agents and initiate negotiations for joint collaboration arrangements with 40 overseas companies. The members of these tours are hopeful of stepping up exports to about Rs. 210 million by 1974-75.

TRADE PROTOCOL WITH U.S.S.R.

On conclusion of the Trade Talks which took place recently between the Trade Delegations of India and U.S.S.R., a Trade Protocol for 1973 has been signed. The protocol envisages a trade turnover of Rs. 4,100 million between the two countries. It also envisages a 15 per cent step up in India's exports to the Soviet Union in 1973 over the anticipated level in 1972.

Besides exports of various traditional commodities like deoiled cakes, cashew kernels, tea, coffee, spices, tobacco, cotton textiles, jute manufactures and handicrafts from India to U.S.S.R., there are a number of engineering and non-traditional items including consumer goods such as readymade garments, lionoleum, garage equipment, electric meters, storage batteries, power cables, wire ropes, dyestuffs, detergents hand tools, cosmetics, surgical instruments, vacuum flasks, footwear and cigarettes in the Trade Protocol.

The principal items of import into India from U.S.S.R. during 1973 will be plant and machinery, petroleum products, industrial raw materials such as asbestos, zinc, nickel, copper, palladium, fertilizers newsprint, refractories etc. besides components, spares and raw materials for the Soviet assisted projects.

WEST EUROPE OFFERS BEST MARKET FOR OFFICE MACHINERY

India made office machinery has come to be increasingly sought by the West European markets, particularly France, West Germany, Italy, Netherlands and the U.K. The total exports of the machinery in 1971-72 stood at Rs. 21.45 million. This was a sizeable improvement over the previous year's export effort at Rs. 19.57 million.

The major area of export in the line comprises statistical machines which netted foreign exchange worth Rs. 18.73 million in 1971-72 against Rs. 16.98 million in the preceding year. France proved to be the best market for these machines at Rs. 6.7 million. The imports by that market in the earlier year were only Rs. 0.5 million. The major purchase of France was in respect of punchers at Rs. 3.49 million in 1971-72. U.K. was another important buyer for punchers at Rs. 1.5 million, followed by Netherlands at Rs. 0.6 million and German Federal Republic at Rs. 0.3 million. U.K. was again a leading buyer of varifiers at Rs. 0.4 million out of the total export trade at Rs. 0.5 million. Three West European markets, namely, France, Netherlands and U.K. bought collators from India at a value of of Rs. 237,130. Sorters and reproducers were purchased in maximum by the UK.

For other statistical machines, France proved to be the best buyer in 1971-72 at Rs. 3.29 million, followed by Italy at Rs. 1.31 million. Belgium, German Federal Republic, Netherlands and U.K. also purchased some quantities of the machines.

Federal Republic of Germany and the U.K. imported some quantities of typewriters and parts also.

India's present installed capacity (1971) for data processing machines is of the order of 14,630 numbers; actual production in that year was 5315 units valued at Rs. 41.39 million.

INDO-ITALIAN TRADE TALKS

Pursuant to the discussions held recently between official delegations of Italy and India on expansion of Indo-Italian commercial relations, it was agreed that considerable scope existed for a substantial increase in Indian exports to Italy, both in traditional and non-traditional items. The increase could be achieved by using various techniques including technical cooperation, market research, exchange of experts and direct contacts between the leading trading organisations, particularly those from the Public Sectors of the two countries.

Interesting prospects have also been identified in selected sectors of industrial collaboration involving Italian technical and/or financial assistance in joint ventures between enterprises of the two countries, especially in export oriented industries, whose production could be particularly tailored to suit the needs of the Italian market. The techniques are also expected to result in an increase of Italian exports to India, especially where sophisticated machinery and equipment would be required for setting up of export oriented industrial ventures designed to export their production to Italy and selected third countries.

The two delegations have favoured the conclusion of a formal Agreement on Indo-Italian Commercial Development Programme between the two Governments with the object of promoting trade and industrial collaboration.

The two way trade transacted between India and Italy has been growing year after year. In 1971-72 Indian exports to that country amounted to Rs. 241.49 million against Rs. 138.56 million in 1970-71. Indian imports from Italy totalled Rs. 244.13 million and Rs. 288.66 million respectively in these two years.

EXPORT TRADE IN NON-FERROUS METAL PRODUCTS

A wide range of non-ferrous metal manufactures is well established on India's export front. The products are mainly made of aluminium, brass and copper. Some quantities of lead and zinc products are also supplied abroad from time to time. The foreign exchange value of the non-ferrous metal manufactures exported during 1971-72 was of the order of Rs. 44.16 million. In fact, the entire group of non-ferrous metals secured through exports Rs. 79.79 million in the same year.

Among the aluminium products, utensils constitute the major category of supply. Nearly 590,000 kg. of these utensils at a value of Rs. 6 million were exported in 1971-72. The important buyers were Bahrein Islands, Fiji Islands, Kuwait, Malawi, Muscat, Saudi Arabia and Trucial Oman. U.K., U.S.A., Canada, Singapore, Somaliland, Lesotho, Ethiopia and Sri Lanka were among the other importers.

Aluminium foils is another major item exported in the aluminium product group. About 0.22 million kg. of the foils worth Rs. 1.7 million were exported in 1971-72. U.K. and Bulgaria account for the bulk of the foils' export trade. U.K.'s purchases were Rs. 0.8 million and Bulgaria's Rs. 0.7 million. Malaysia, Kenya, Tanzania and Sudan are tne other important markets.

Iraq, followed by Singapore, Kuwait and Sri Lanka were the major purchasers of Aluminium capsules which fetched Rs. 0.18 million in the year. Aluminium castings, furniture, tubes, fabricated structurals are among the other product groups produced of this metal. Aluminium sheets, circles and strips is yet another area of importance in export trade, having fetched nearly Rs. 3 million in foreign exchange with Sri Lanka as the major importer (Rs. 2 million), followed by Thailand (Rs. 0.7 million). In all, the export of aluminium products in 1971-72 amounted to Rs. 12.8 million. In the earlier year, the export value was Rs. 24 million. The decline in the export earning was mainly due to the fact that Yugoslavia did not import aluminium ingots in 1971-72 while in the preceding year her imports of ingots totalled Rs. 13 million.

Of the brass products whose export earning totalled Rs. 13.38 million in 1971-72, brass sheets, circles and strips contributed Rs. 8.24 million. Hong Kong has emerged as the bulk importer at Rs. 6.5 million. Iran is another important market. India's brass utensils are famous in several countries of the world. They were exported to fortyone countries in 1971-72 to earn Rs. 2.62 million. Saudi Arabia was a million rupee market while Denmark, U.K., USA, Madagascar, Norway, Netherlands and Sweden were the next important importers. Brass rods, wires and tubes are the other product of export significance. Their export value was nearly Rs. 2 million in 1971-72 of which Hong Kong was the bulk importer at Rs. 1.36 million. Sri Lanka and the U.K. were among the other importers.

Collapsible tubes of non-ferrous metals have picked up world demand in recent years. The export trade has been improving year after year till it reached the level of Rs. 1.5 million in 1971-72. Iraq, Kenya, Sudan, Kuwait and Zambia were the leading buyers.

Of the copper manufactures, copper rollers constitute a major item of export trade. In 1971-72, in which year their export value was Rs. 1.6 million, Rumania's share was as much as Rs. 1.45 million. Copper rods and wires constitute the next best area of copper product exports, having netted Rs. 1.24 million, the significant importers being Netherlands and Sri Lanka. Copper utensils proved to be popular in Muscat, Bahrein Islands, Lesotho, Singapore, Netherlands and Saudi Arabia while copper sheets, circles and strips were purchased principally by Iran, Burma, Singapore and New Zealand.

An area of rising export importance, E.P.N.S. ware (based on lead) had a Rs. 12.36 million market abroad in 1971-72 as against its export trade worth Rs. 9.55 million in the preceding year. The ware is mainly imported by advanced countries. The Soviet Union, U.S.A. and the U.K. together purchased worth Rs. 9 million in 1971-72 of which U.S.S.R.'s share was Rs. 4.35 million, U.S.A.'s Rs. 3.3 million and U.K.'s Rs. 1.35 million. The ware is also exported to several other countries including Cyprus, France, Netherlands, Hong Kong, Malaysia, Mauritius, Singapore, Sudan and Thailand.

Among other non-ferrous metal based products that figure in India's export trade are printing types, nickel wire, silver wire and rods for electrical purposes, solder wires and sticks, and zinc plates and sheets.

EXPORT POSITION OF TOBACCO MANUFACTURES

India's exports of unmanufactured tobacco earned foreign exchange to the tune of Rs. 467.25 million during the period of the first seven months of 1972-73 (April-October 1972). Quantitatively 61.65 million kg. of tobacco was exported to the overseas market during this period.

Destination-wise, the USSR retained its position as the number one importing country and accounted for Rs. 225 million (25.65 million kg.) of the entire exports. The USSR shared nearly 48 per cent of the total export value. United Kingdom was the second prominent importing country whose total intake was valued at Rs. 114.78 million (12.85 million kg.) accounting for 24 per cent of the total exports. Besides, the share of the other important markets was: Japan Rs. 42.78 million (4.2 million kg.); Bangladesh Rs. 32.67 million (7.63 million kg.); Czechoslovakia Rs. 14.80 million (1.6 million kg.); Irish Republic Rs. 11.1 million (1.06 million kg.); Bulgaria Rs. 6.36 million (1.73 million kg.); Somalia Rs. 2.79 million (0.9 million kg.). Besides, Libya (Rs. 2.74 million), Netherlands (Rs. 2.23 million), Singapore (Rs. 2.04 million), Saudi Arabia (Rs. 1.48 million)etc. were the other destinations.

The tobacco products fetched Rs. 14.53 million. Cigarettes constituted the major category which netted Rs. 12.91 million and accounted for nearly 90 per cent of the total export earning of this group. Hookah tobacco was the next important item which earned foreign exchange at a value of Rs. 1.10 million. Besides, bidis, snuff and others were also prominent in the export trade.

HANDICRAFT EXPORTS UP

India's export earning of handicrafts recorded a constant increase from year to year. In the period of 9 months of 1971-72 (April-December 1971), the export value was as much as Rs. 663.30 million as against Rs. 163.14 million. A massive increase of Rs. 50.17 million was recorded during the period of review in 1971-72 over the comparable period of 1970-71. In terms of Dollars, the export value was $ 88.42 million as compared to $ 81.73 million, registering an increase of $ 6.69 million.

During the period from January to December of 1971 the export earning was Rs. 853.20 million. The export value in the same period was Rs. 801.60 million in 1970, Rs. 839.9 million in 1969, Rs. 683.10 million in 1968 and Rs. 536.70 million in 1967.

A large number of items of handicrafts recorded improvement in their export values during the period under review (of 1971-72). Precious, semi-precious and synthetic stones earned Rs. 372.26 million in 1971-72 (April-December 1971) as against Rs. 313.37 million in the comparable period of 1970-71. The increase in export was of the order of Rs. 58.90 million. Woollen carpets, rugs and druggets including namdahs was an another area of export increase. The export of these items rose by Rs. 19.09 million. The export earning rose to Rs. 100.23 million from Rs. 81.14 million in the comparable periods of 1971-72 and 1970-71 respectively. Embroidered goods also witnessed an increase of Rs. 2.39 million. The export value was Rs. 8.37 million against Rs. 5.98 million. Besides these major categories some other items also registered marginal increases in the export value in the period of review of 1971-72. Art metalware exports increased to Rs. 54.10 million from Rs. 52.12 million. Woodwares exports too increased to Rs. 23.35 million from Rs. 22.64 million. Similarly, a slight increase was also witnessed in silver jewellery export. The miscellaneous handicrafts earned Rs. 40.97 million as against Rs. 34.20 million.

However, the export earnings of some categories declined during the period of review of 1971-72 compared to the comparable period of 1970-71. Hand printed textiles was the major area where the export value declined to Rs. 33.48 million from Rs. 63.91 million. Imitation jewellery exports too decreased to Rs. 9.98 million from Rs. 15.88 million. Besides, marginal decline in export values was recorded in 1971-72 (April–December 1971) in the categories of shawls and artware; zari and ivory products; carpets, rugs and durries etc. of cotton; gold jewellery and jewellery of other precious metals (platinum etc.).

EXPORT UPTREND IN SILK PRODUCTS

The export earnings at Rs. 43.14 million during the first seven months of 1972-73 (April-October) indicated the increase over the export performance at Rs. 40.38 million in the same period of 1971-72. The export rise was alike in respect of mulberry silk and tasar silk products. The mulberry silk exports rose to Rs. 36.12 million against Rs. 34.29 million and the tasar silk exports to Rs. 7.02 million from Rs. 6.10 million in the corresponding periods.

Among the varieties of silk goods exported which contributed to the export rise, dress materials accounted for Rs. 12.41 million in the period reviewed in 1972-73 against Rs. 12.31 million in the same period of the preceding year. The contribution of scarves was at Rs. 10.72 million against Rs. 9.74 million, that of sarees Rs. 7.05 million against Rs. 6.13 million and readymade garments Rs. 4.17 million against Rs. 3.44 million.

In the first nine months of the calendar year 1972, the total export of mulberry silk goods amounted to Rs. 49.20 million (3.11 million sq. metres). The offtake of Asia was of the order of Rs. 6.92 million while that of Africa was Rs. 4.50 million, Japan Rs. 2.49 million, West European countries Rs. 26.63 million (West Germany leading the list at Rs. 11.73 million), East Europe Rs. 3.06 million and U.S.A. Rs. 3.76 million. The export of tasar silk goods in the same period of 1972 was Rs. 11.21 million of which the share of West Germany was as much as Rs. 5.82 million, followed by that of U.S.A. at Rs. 0.94 million, France Rs. 0.94 million and Italy Rs. 0.53 million.

INDIA OFFERS RAILWAY KNOW-HOW

The Indian Railways have undertaken the task of restoring the railway track and bridges, signalling and telecommunication systems of Bangladesh Railways and the supply of track materials, fabricated girders, and other stores and tools. The job has been taken up at a cost of about Rs. 80 million out of the Rs. 100 million line of credit given by the Government of India to Bangladesh.

India has also offered assistance in the development of railway system in Guinea. The offer was made when a Guinean delegation visited India recently. The technical expertise developed in India based on varied experience in different gauges can indeed be made available to the Government of Guinea and to this end it was decided that a technical team of railway engineers be shortly sent to that country to assess the maintenance requirement of their rolling stock.

A project feasibility study had recently been submitted by a Japanese team for the laying of a railway line from the north of Guinea to its coast for the transportation of iron ore and bauxite. But the visiting team expressed interest in India also tendering for meeting the needs of the Guinean railway system.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

TELEPHONE INDUSTRY AND PRODUCT EXPANSION

From merely 86,000 numbers in 1947, the production of telephones in India rose to over 1.3 million numbers today. The manufacturer, Indian Telephone Industries (ITI) Limited, Bangalore, has had to consistently expand its capacity to meet the rising demand for telecommunication equipment, consequent upon the economic progress achieved in the country since its independence.

The major areas of equipment manufactured by the ITI relate to exchange equipment, telephone instruments, and transmission equipment and equipment for satellite communication system. In respect of exchange equipment, ITI has an annual capacity of 250,000 lines (150,000 lines of Strowger type and 100,000 lines of crossbar type). It is estimated that during the Fourth Five Year Plan period ending 1973-74, the requirement of the Post and Telegraph Department in India would be about 1.5 million lines of which the company is expected to manufacture about 1 million lines and supply about 800,000 lines during the plan period. To meet the gap in supply, the Government of India approved to set up another Switching factory at Rae Bareilly (U.P.) with an ultimate cannual apacity of 300,000 lines. This project is estimated to involve an investment of 200 million and is expected to go on stream by the fourth year of the Fifth Plan (1979-80). Meanwhile, the Strowger unit in Bangalore is to witness further augmentation of its output from the present 150,000 lines to 200,000 lines per year by 1975-76. In all, ITI is expected to deliver over 1.5 million lines during the Fifth Five-Year Plan.

The Company's unit at Bangalore produces 250,000 telephone instruments. In view of the rising demand for the instruments, the Government approved another factory at Naini near Allahabad (U.P.) Although the Naini factory was originally scheduled to go into production by 1974-75, ITI is endeavouring to commence output two years ahead of schedule by assembling 20,000 instruments during 1972-73 and about 50,000 instruments in the year that follows. The company has recently finished a design of a new telephone instrument having the facilities and component design in tune with the most modern concepts and practices in the world to provide reliable performance.

In respect of transmission equipment, the development work that has already witnessed progress is completely based on indigenous know-how. The introduction of subscriber trunk dialing facilities on the microwave and the coaxial cable channel and the television capability of All India Radio (AIR) have increased the demand manifold for newer types of equipment. ITI is now gearing up to rapid research and development work to produce equipment to meet the emerging demand. To improve the manufacturing capacity, a transmission factory has already been set up at Naini near Allahabad which has gone into production during 1971-72 in a record time of less than two years.

ITI has designed and supplied the multiplex equipment to link India's first Earth Station for satellite communication set up at Arvi near Poona with the switching centre in Bombay. The Company has also designed, in collaboration with M/s. Bell Telephone Manufacturing Company of Belgium, the International Telex equipment for the Overseas Communication Services Gateway at Bombay. The instrumentation of these two sophisticated switch centres is in progress, and these are expected to be commissioned soon. This will indeed enable semi-automatic working of international telex and telephone services.

For the first time, Indian engineers have taken up the development of ground control equipment in India's second satellite earth station also for overseas communication service. Among the other achievements of the company, mention may be made of the automatic error correction equipment designed by ITI's engineers, which has earned the 'International Telecommunications Day Award'. The company also has exploited the latest Integrated Circuit technique to develop a modern 20 line electronic exchange. They have been manufacturing 1000-A type Crossbar Exchanges already. In addition, the work on the design and engineering on the much improved 1000-C Version of Pentaconta Crossbar Equipment has been taken up. ITI's effort on import substitution is noteworthy. While import dependence on basic raw materials such as special steels, nickel, silver sheets, phosphor bronze sheets etc., a large variety of equipment and components that go into the manufacture of ITI's products is now largely indigenous.

On the export front, ITI's products have already reached forty countries. Notwithstanding large export potential, the requirement position in the domestic market has curtailed India's further capacity for other external sales. In 1971-72, India's export value of telecommunication apparatus was of the order of Rs. 29.92 million as against Rs. 27 million in the preceding year. Besides radio broadcast receivers, the export range includes over Rs. 3 million worth of telephone apparatus and instruments as well as telegraph equipment.

AIR CONDITIONING AND REFRIGERATION EQUIPMENT INDUSTRY

The Indian industry is today in a position to manufacture various types of air conditioning and refrigeration equipment. The equipment includes, besides complete refrigerators and air conditioners, packaged air conditioners, food freezers, environmental test chambers, water coolers, bottle coolers, beverage coolers, display cabinets, cooling towers, fans and blowers, blood storage freezers, ground cooling units for aircraft, compressors, chillers, condensers, evaporators etc. for central air conditioning, and cold storage plants. Capacity for air conditioning equipment for ships has also been developed in the economy. Some of the ships recently fabricated in India are fitted with indigenous equipment. However, refrigeration equipment for ships which require rigid Lloyd specifications are under development.

With six units in the line at an installed capacity of 108,000 numbers per year, the output of domestic refrigerators in 1971 was 87,070 numbers valued at Rs. 123.32 million. An additional capacity for about 10,000 numbers has been licensed and with that the total capacity will be 118,300 numbers per year. The targetted production for 1973-74 has been placed at 150,000 numbers.

Seven units produced 22,200 room air conditioners in 1971 at a value of Rs. 59.44 million. The units have an installed capacity of 23,280 numbers. By 1973-74, it is targetted that 27,000 numbers of air-conditioners will be produced per year.

In respect of industrial refrigeration equipment including air control equipment, the installed capacity (1971) was of the order of Rs. 252 million while the actual production was Rs. 103.63 million. For compressors the capacity was Rs. 12.06 million but the actual production exceeded the capacity at Rs. 18.59 million. In terms of quantity the production was of the order of 32,200 numbers. The capacity for air conditioning and refrigeration controls was Rs. 10 million in 1971 while the production was Rs. 8.3 million. In respect of industrial cooling towers, production in 1971 exceeded the installed capacity ; Rs. 17.4 million and Rs. 15.5 million respectively. For fans and blowers, eleven units have an installed capacity of 52,300 numbers at a value of Rs. 52 million while the actual quantum produced was 15,850 numbers at Rs. 21.65 million in 1971.

The production of the major equipment, that is, compressors was started only in 1965. At that time there was a heavy drain on foreign exchange for the import of the equipment and its spare parts. Today the country is self-sufficient and the requirement of components has been brought down to 3 to 4 per cent compared to the earlier ratio of 50 to 60 per cent. Since 1970, the production of centrifugal packaged chillers has also been started. In addition to the available capacity of compressors for about 600 tonnes, one more unit is likely to come up for their manufacture upto a capacity of 1100 tonnes of air conditioning. The major import of the compressor industry is for copper tubes which is also being gradually developed in the country.

Under the head of industrial air control equipment, the range of items presently manufactured includes electrostatic precipitator, dust collection system, fans and blowers, fume extractors, and ventilation equipment. These equipment are manufactured from the raw material stage except certain applications where import of components of not more than 5 per cent is required. Humidification and ventilation equipment for ships have been supplied from indigenous sources.

India is self-sufficient as far as cooling towers are concerned. The country is able to meet the requirements of power plants, cement plants, fertilizer plants, steel plants and for other industrial applications.

Besides meeting the growing domestic demand, the air conditioning and refrigeration equipment, air control equipment and cooling towers have entered the export market also. According to the estimates of the Engineering Export Promotion Council, Calcutta, the total export efforts of the air conditioning and refrigeration group was Rs. 8.51 million in 1971-72 as against Rs. 6.13 million in the preceding year. The air conditioning and refrigeration plants fetched Rs. 5.83 million. Nigeria's import value was of the order of Rs. 1.15 million while Malaysia's was Rs. 1.08 million. Sri Lanka, Cyprus, Greece, Singapore, Thailand, Indonesia, and Arab Republic of Egypt were among the other importers. Refrigerators and parts secured Rs. 1.17 million, mainly rom export to Italy, Sri Lanka, Sudan and Trucial Oman. Air conditioners and parts netted Rs. 0.71 million, the major buyers being Zambia and Iraq. The export value of water coolers and parts was Rs. 0.78 million in the same year, Kuwait and Abu Dhabi being the leading buyers. Some exports of ice making machinery were also effected in the year, mainly to Indonesia and Sudan.

EFFORTS TOWARDS IMPORT SUBSTITUTION

To monitor air pollution caused by motorcars, a team of scientists at the Indian Institute of Technology in Madras has developed a 'smoke meter' that measures accurately the quantity of smoke in automobile exhausts. Developed at the request of the Tamil Nadu Transport Department, the instrument is claimed to be better than the existing smoke meters, almost all of which have been imported.

In recognition of this work, the Inventions Promotion Board (IPB), New Delhi, has offered a collective award to the IIT scientists.

Having only a few moving parts, the device measures the amount of smoke by simply determining attenuation of light from a six volt lamp, as it passes through exhaust gas.

IPB has also awarded a gold shield to Messrs United Phosphorus Private Limited for their efforts to produce phosphorus in India. Used in defence, fireworks and match-box industries, red phosphorus is a vital chemical but until recently it had been imported from abroad.

This company has developed indigenous knowhow and complete process for the manufacture of red phosphorus from locally available white phosphorus.

Another shield has gone to M/s. T. Maneklal Manufacturing Company Limited, Bombay. This firm is said to have saved considerable foreign exchange by way of locally producing 'expansion joint', used in chemical industries, thermal plants and steel plants. Made of special rubber composition, the expansion joints are used to absorb sudden thermal shocks and to prevent metallic pipes from 'twisting' because of thermal expansion or contraction.

SPOTLIGHT ON DAIRY MACHINERY

India has three industrial units presently engaged in the production of dairy machinery. With the facility of collaboration from renowned producers of Denmark, Sweden and the U.K., the total licensed capacity for these units is valued at about Rs. 25.7 million, while their actual production in 1971 far exceeded the capacity at Rs. 34.7 million; the production was only Rs 24.6 million in 1970.

The implementation of the World Food Programme popularly known as "Operation Food" has had an impact on domestic demand. It has been estimated that the demand will be of the order of Rs. 60 million per year during the Fourth Plan period ending 1973-74. The existing dairy machinery manufacturers have no doubt geared up to the maximum possible extent to meet the sudden increase in demand. But in view of the substantial gap between the demand and supply, there are plans for creating further capacity. Letters of intent were issued to 14 firms for an annual capacity of Rs. 82.2 million.

The existing manufacturers are in a position to design and engineer dairy plants of various sizes on a turnkey basis. They are also capable of manufacturing complicated equipment like high speed automatic milk bottling plants. There are, however, equipment like homogenizers, satchet filling machines and cream separators of higher capacity which are still to be made indigenously. It is hoped that after the new units come up, the country will take a firm step ahead towards self-sufficiency in the industry.

The major imported raw material for the dairy machinery industry is stainless steel in various categories. With the development of stainless steel manufacture in India, indigenous content for this industry is bound to increase. Imported components are only of independent bought out nature such as instrumentation and electrical controls and special stainless sanitary type fittings. The present imported content for the dairy industry, including stainless steel is about 20 per cent; it was as high as 70 per cent in 1961-62.

CHARGE ELIMINATOR INDIGENOUSLY MANUFACTURED

The Isotope Division of the Bhabha Atomic Research Centre, Bombay, has recently developed a simple yet effective static charge eliminator with the help of radio isotopes. The eliminator has been installed at the factory of Indian Detonators, Hyderabad, for neutralising static electricity produced during the sieving operations of an explosive material, pentaerythritol tetranitrate.

During dry weather explosive materials are stated to generate huge quantities of static electricity, sometimes upto 10 kilovolts. The electricity so generated often sparks off explosions rendering operations in the explosive factories hazardous. The new device of the Bhabha Centre ionises the air passed through it which, when blown over the zone where the explosive mixtures are handled, will dissipate the static charge and thus eliminate the risk of sparks igniting explosives.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

LIGHT WEIGHT CLAY BRICKS DEVELOPED

Light weight clay bricks and blocks providing a more dimensionally stable material with better thermal and sound insulation properties have been developed by the Central Building Research Institute (CBRI), Roorkee (UP).

In the past few years, there has been a growing realization that though solid ceramic building materials like bricks and tiles are durable, they have a great disadvantage viz. heavy weight. The steady trend in the entire building industry towards light weight materials has made it necessary for a similar trend in the ceramic materials. The solid building bricks of apparent density 1700-1900 kg/m 3 and of thermal conductivity between 0.5 to 0.75 K Cal/°C hr M producible only in small sizes, can no longer satisfy the requirement of modern architecture. These should be replaced by building units of at least twice the size of the present day bricks having adequate stability and resistance to weathering. They should also have apparent density and thermal conductivity below 1200 kg/m3 and 0.25 K Cal/°C hr m respectively.

The Novel features of the developed bricks are that these are meant for insulation (apparent density 400 Kg/m3) and can be easily nailed, sawn and cut to any shape and size. The cost of material for some efficiency of insulation is lower than that for foamed concrete, "Thermofriz" and "Thermocole". The light weight bricks and blocks of apparent density 800 Kg/m3 (about half that of normal bricks) can be used for load bearing multi-storeyed construction with advantage of rapid construction, reduced foundation costs and better insulation. The bricks without plastering can be exposed to outer atmosphere. The material is dimensionally stable under exposed natural weather conditions. Being a ceramic material, it ensures easiness in laying and plastering. Materials like "Thermocole" and "Thermofriz" cannot be plastered easily. It can be used as an insulating material both for cold and hot insulation purposes. It provides higher fire resistance as compared to thermocole and wood wool boards. It does not show any dis-integration at high temperature (800° C and below) like foamed concrete. Water and vapour permeance is lower as compared to that of light weight foamed concrete. The material provides excellent impact resistance and cannot be scratched off easily like cellular concrete. It, therefore, does not require much care during handling. It also has sound absorption property. The manufacture of bricks and blocks does not require any complex machinery. The cost of material is lower than that of cellular concrete, "Thermocole" and "Thermofriz" for equivalent insulation.

At present the demand for insulated material required for construction of air conditioned buildings, old storages and offices is partly met by M/s. Hindustan Housing Factory, New Delhi. With the development of light weight clay bricks and blocks, the demand for building insulation in residential buildings, factories and office buildings for roof and wall insulation will be considerable. These bricks will also be used for cold storages, air conditioned buildings and for hot insulation in furnaces, brick kilns, drying rooms and power houses.

MONOCHLORO ACETIC ACID DEVELOPED

Monochloro acetic acid is an important raw material for the synthesis of dyes (Indigo etc.), pharmaceuticals such as pyrodoxine (Vitamins, B6) and other vitamins theophylline, aminophylline, glycine and phenyl glycine, thiocyanate insecticides, mercapti acetic acid. It is a starting material for 2, 4 Dichlorohenoxy acetic acid (2, 4D) and also 2, 4, 5 T which have a good market in India. The bulk use of the acid is in the manufacture of carboxymethyl cellulose.

Monochloro acetic acid is known to be produced in the country by about five firms. Their total capacity is about 2550 tonnes per annum.

The present method of manufacturing the acid in India is mainly based on semi batch method with all its disadvantages and difficulty in operation. The product obtained is only 92, 93 per cent pure and is not suitable for manufacture of 2, 4 D and other weedicides. The cost of purification is high both by way of operational costs and capital investment.

A process has been recently developed at the Regional Research Laboratory, Hyderabad, and it consists in the chlorination of acetic acid with certain proportion of catalyst in a continuous reactor with recycle facility. The product obtained is of high (8 per cent) and uniform purity with less initial investment per tonne of product.

Acetic acid, catalyst and chlorine are the main raw materials needed in the process. They are all available in the country.

The essential items of plant and machinery include storage tanks, mixing tank, feed tank, chlorine cylinders, reactor with accessories glass, HCI absorption column, Gas preheater, two distillation columns, Flaking unit, pumps and water sealed vacuum pump. In addition, boiler, refrigeration unit and chilling plant are needed.

LOW COST PAPER HOUSES

The Regional Research Laboratory, Jorhat (Assam), has recently developed a design to build low cost houses. The houses are built from a plain or corrugated board with suitable strength and other fire and water resistant properties. Such a board can be prepared from celloulosic raw materials and waste papers.

The process of board making consists of beating waste papers or other pulp in the presence of sizing material and subsequent sheet forming followed by drying. The corrugated sheet is produced by forming the sheet from the pulp stock, removing the excess water under pressure and then placing the sheet under suitable corrugated mould. The boards, plain or corrugated, are further subjected to surface sizing treatments for making them water resistant. The boards or corrugated sheets can be made of suitable sizes and profiles for making prefabricated houses, which provide safety against wind and other loads, drainage and insulation. Such houses may not require any foundations but if the sheets or boards are plain, it would be necessary to provide a light weight structure of timber or bamboo or angle iron. Flooring and other finishing can be provided according to individual choice. The prefabricated low cost houses so built will be durable, structurally safe and water and fire resistant. They are easy to make and provide economy in labour and transport.

Waste paper, bamboo pulp and certain chemicals are the main raw materials for making the board and these are available in India. Vessel for emulsion preparation, beater, stock chest strainer, cylinder mould, board making machine, hydraulic press, corrugation mould and cutter are important items of plant and machinery. All these are available with the indigenous pulp and paper machinery manufacturers.

MICROFILM PRINTER

Microfilm printer is an attachment to Xerox and other electro static photocopying machines, which can produce a full size readable positive print from a microfilm.

The Solid State Physics Laboratoy (SPL), Delhi, has deloveloped a microfilm printer which can give a positive print from both negative as well as positive microfilms. For the purpose, the SPL has developed a special optical arrangement using a unique developing technique that can be used with an electrostatic photocopying machine without any difficulty.

Equipment required for the newly developed printer is simple and available indigenously. Main raw materials needed are wooden box, optical arrangement and some special materials for the development process. All these are indigenously available.

These microfilm printers are at present being imported and their market price is around Rs. 15,000. The microfilm printer attachment developed by SPL is much cheaper.

PUBLIC SECTOR EARNS AND SAVES FOREIGN EXCHANGE

Since the launching of the First Five-Year Plan, till 1970-71, the total number of public sector enterprises engaged in manufacture were 97 and the cumulative investment was Rs. 46820 million. The major objective of the public sector is to rapidly industrialise the economy by establishing basic industries engaged in the production of capital goods like steel, cement, fertilizers, insecticides, antibiotics, heavy machines, power generation plant, oil and petroleum products, non-ferrous metals, coal etc.

Since these projects have been set up to manufacture products which were imported hitherto, it would be reasonable to consider their entire output as import substitution. On this broad basis, the total foreign exchange saving achieved by these enterprises can be linked with their total output.

The total output of the public sector enterprises was estimated at Rs. 21,566.50 million in 1970-71. In the earlier two years, namely, 1968-69 and 1969-70, the estimated output was Rs. 18,862 million and Rs. 15,628 million respectively. The data does not include the turnover of trading enterprises like State Trading Corporation as well as of promotional, developmental and financial institutions. The total Central Government investment of Rs. 46,820 million by 1970-71, however, related to such non-manufacturing institutions and undertakings also.

The value of the output in the manufacturing public sector enterprises, less the national import duty, value of imported raw materials and components used, interest on outstanding foreign loans and royalty, can be taken as the total foreign exchange saving effected by them.

The output of the public sector in 1970-71, in fact, indicates the output of products and services of 70 running concerns which would have otherwise have had to be imported. Total government investment in these enterprises stood at Rs. 36,870 million. These 70 enterprises engaged in manufacturing, mining and service producing industries utilised foreign exchange to import raw materials components and spare parts at the rate of Rs. 1998.90 million in 1970-71, Rs. 1718.40 million in 1969-70 and Rs. 1671.40 million in 1968-69. The amount of royalty and dividend paid by these enterprises in foreign exchange is insignificant. The annual interest liability against outstanding foreign loans, credits and other commitments was Rs. 178 million in 1970-71 as against Rs. 162 million and Rs. 139 million in the respective previous years.

The net amount of foreign exchange saved by the 70 manufacturing enterprises on the total investment at Rs. 36,870 million amounted to Rs. 10,210 million, Rs. 12,670 million and Rs. 14,420 million respectively in the three years ending 1970-71. This was calculated on the basis of the total output valued approximately at comparable landed cost minus the average import duty of 30 per cent, the value of imported raw materials and stores, the interest on foreign loans ; in other words the total Central Government investment on these products was able to yield an import substitution at the annual rate of growth of about 40 per cent of such investment which indeed is an achievement. The following table gives a picture of net foreign exchange saved.

(Rs. million)

Year	Total output	Average import duty @ 30%	Imported materials, stores	Interest on foreign loans	Net foreign exchange saving
1968-69	15,628.40	3606.60	1671.40	139.00	10,211.40
1969-70	18,862.00	4352.80	1718.40	162.00	12,628.80
1970-71	21,566.50	4976.90	1993.90	178.00	14,417.70
Total					37,257.90

Aside from the foreign exchange saving effort (in terms of rupees) export of goods and services produced and canalised by these public sector enterprises was of the order of Rs. 3679.3 million in 1970-71, Rs. 3184.8 million in 1969-70 and Rs. 2722.4 million in 1968-69. In 1970-71, the share of steel in the total was Rs. 530.0

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million, that of iron ore Rs. 331.5 million, petroleum products Rs. 50.5 million, engineering products Rs. 72.0 million, air and shipping corporations Rs. 897.9 million and trading corporations Rs. 1797.5 million. The share of these sectors in the earlier two years respectively was Rs. 456.30 million and Rs. 415.50 million, Rs. 293.40 million and Rs. 222.6 million, Rs. 51.0 million and Rs. 24.60 million, Rs. 60.30 million and Rs. 46.60 million, Rs. 837.80 million and Rs. 708.80 million; and Rs. 1486.00 million and Rs. 1304.70 million.

India's total foreign exchange earnings for the export of these goods in these three years were Rs. 13,580 million (1968-69), Rs. 14,132 million and Rs. 15,352 million respectively, against the share of the public sector at 14.8 per cent, 16.6 per cent and 18.1 per cent respectively.

While the general foreign exchange earnings through commodity exports increased about 6.5 per cent yearly in these three years exports by public sector units grew at the rate of about 19 per cent in the same period. The performance of the public sector in earning foreign exchange after satisfying domestic requirements has been noteworthy. Much of these exports are in the highly competitive fields of sophisticated equipment like heavy boilers for power generating plant, complete instrumentation systems, machine tools, telephone equipment, teleprinters and electronic apparatus. □

Attention

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EXPORT OF PIGMENTS

Overseas supply of pigments from India amounted to Rs. 7.63 million in 1971-72. Of this, organic pigments secured Rs. 2.75 million, inorganic pigments Rs. 2.30 million, pigments (inorganic-prepared) Rs. 1.74 million, pigments (organic–prepared) Rs. 0.77 million, and other pigments Rs. 70,000. Major supplies are to developed markets such as U.S.A., West Germany and Japan.

During the year, a single exporting firm M/s. Sudarshan Chemical Industries (P) Ltd., 162, Wellesley Road, Sangam Bridge, Poona-1, engaged in the production of organic and inorganic pigments and intermediates, succeeded in exporting their products worth about Rs. 2.48 million to more than twenty countries of the world. The exports effected by the firm during the first six months of the current year (1972-73), totalled about Rs. 1.65 million.

The export stream of the firm includes such items as teulidine red, zinc chrome, lemon chrome, rubine toner, suthol red, benzidine yellow, perma bus green, zinc chromate acid, prussian blue etc. Hong Kong, U.S.A., Arab Republic of Egypt, U.K., Philippines, Kuwait and Thailand were the major purchasers for the supplies effected by the firm during 1971-72. The other important buyers were Australia, Belgium, Canada, Greece, Indonesia, Malaysia, Singapore, Taiwan and Zambia.

As a part of its Research and Development programme, the Poona firm has developed the technology and know-how for the manufacture of cosmetic colours and Flushed and Micronised Pigments for the development of products and processes with indigenous know-how. They were awarded Sir P. C. Ray Award for the year 1967-68 for the development of products and processes with indigenous know-how. They have also received a Certificate of Merit and Trophy from the Chemicals and Allied Products Export Promotion Council, Calcutta, for their export effort.

Indian economy has made good progress in the paints industry. Besides the growth registered in the manufacture of finished paint items, substantial development has also been made in the context of essential raw materials needed for paint production, such as pigments, synthetic resins and industrial solvents. A number of inorganic pigments like titanium oxide, zinc oxide, white lead, non- setting red lead, yellow chrome, prussian and ultramarine blue, burnswick green, chromic oxide green, red synthetic oxide and aluminium powder, or paste as well as a wide range of organic pigment dyestuffs are manufactured in large quantities.

VACUUM FLASKS TO U.S.S.R.

Recently India signed an agreement for the supply of about one million vacuum flasks and refills to USSR. The State Trading Corporation of India and M/s. Raznoexport of U.S.S.R. were the exporting and importing agencies. The contract was signed at the Asia'72 Fair, currently on in New Delhi and is valued at Rs. 7.7 million. The agreement provides for shipment of these flasks during 1973.

India's export value of Vacuum Flasks and other Vacuum Vessels rose to Rs. 4.83 million in 1971-72 from Rs. 2.90 million in 1970-71. Quantitatively, 6,56,640 and 4,19,365 flasks were exported during the two years.

The bulk of this export is directed to the Soviet Union which imported 5,04,465 flasks at Rs. 3.72 million during 1971-72 and 3,13,325 flasks worth Rs. 2.15 million during 1970-71. Poland with an intake worth Rs. 3,22,370 was the second important buyer during 1971-72, followed by Australia at Rs. 2,47,155. Sri Lanka, Ghana, Kenya, Philippines and Sudan were the other major markets for flasks during the year.

SANITARY FITTINGS ON EXPORT STREAM

The export of sanitary fittings earned Rs. 6.81 million during 1971-72. The value was even more in the earlier year (1970-71) at Rs. 7.44 million. Czechoslovakia has been the leading buyer whose intake in 1971-72 was valued at Rs. 1.66 million. Sudan was the next best destination having absorbed worth Rs. 0.35 million, followed by Switzerland at Rs. 0.29 million, Kuwait at Rs. 0.25 million, Indonesia at Rs.0.22 million, Kenya at Rs. 0.18 million, Malaysia at Rs. 0.16 million and U.S.A. and Iraq at Rs. 0.13 million each. Nigeria, Singapore, Mauritius, Hong Kong, Greece and Burma, were among the other buyers.

M/s. Tiger Products Private Limited, 101 Akashdeep, Hailey Road, New Delhi-1, one of the firms engaged in the manufacture and export of sanitary fittings, has recently secured a trial order from the Soviet Union worth Rs. 1.87 million for the supply of sanitary fittings to that country. This is stated to be the biggest export order secured by an Indian firm in recent years from the USSR for supply of this item. This trial order is expected to be followed by another order valued at Rs. 8 to 10 million by the end of this month.

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HANDLOOM LUNGIS TO BANGLADESH

In the entire group of handloom piecegoods, which earned foreign exchange to the tune of Rs. 99.54 million in 1971-72, lungis occupied an important position, accounting for about 25 per cent of the total export value. Handloom lungis earned Rs. 26.02 million in 1971-72. Of these, coloured lungis constituted the main category having earned as much as Rs. 23.16 million, sharing more than 88 per cent of the entire export value of this category. Singapore was the leading importing country absorbing worth Rs. 12.32 million, followed by Malaysia at Rs. 8.45 million, Maldive Islands at Rs. 0.83 million, Lebanon at Rs. 0.37 million, Sri Lanka at Rs. 0.23 million and Thailand at Rs. 0.15 million. South Yemen Republic, Kenya, Ethiopia, Federal Republic of Germany etc. were the other export destinations.

Dyed lungi was the next category which netted Rs. 1.50 million. Singapore again topped the list of importers having accounted for Rs. 0.77 million worth. The import value of the other two important markets was: Dubai Rs. 0.46 million and South Yemen Republic Rs. 0.10 million. Bahrein Islands, Kuwait, Muscat and Qatar were among the other importing countries.

Grey lungis was yet another category which earned Rs. 1.16 million. The prominent markets for this item were, Dubai, South Yemen Republic, Bahrein Islands, Kuwait, Lebanon, Malaysia, Muscat, Qatar, Saudi Arabia, Singapore, Thailand and U.S.A.

In addition to these varieties, printed lungis earned Rs. 0.97 million and white lungis Rs. 0.12 million. Dubai, Malaysia, South Yemen Republic, Singapore, Afghanistan and Japan were the prominent destinations.

Recently, the Maharashtra State Handloom Corporation, Bombay, has enterd into an agreement with Bangladesh for the supply of 25,000 lungis. The supplies are to be effected by the year end. Soon after the conclusion of the contract, nearly 100 handlooms in Nagpur City commenced production of lungis. There is a possibility of the Corporation entering into another contract with Bangladesh for the supply of handloom sarees.

EXPORT OF CIGARETTES UP

In recent years, Indian unmanufactured tobacco and tobacco products have been witnessing uptrend in the country's export trade. In fact, India has already established reputation in the world markets as a prominent exporter of these itmes. The year 1971-72 was the peak year for export of the Indian unmanufactured tobacco and the products made therefrom. The export of these items netted foreign exchange at a value of Rs. 451 million (1971-72) as against Rs. 325.62 million in the preceding year. This represents a sharp increase of Rs. 125 million (38.46 per cent) in 1971-72 over the export performance of the previous year. Of the total value of export during 1971-72, unmanufactured tobacco accounted for Rs. 422.46 million while tobacco manufactures earned Rs. 28.34 million. During 1970-71, the export value of unmanufactured tobacco was Rs. 313.98 million and that of tobacco manufactures was Rs. 11.64 million.

In 1971-72, cigarette was the main export item in the category of tobacco manufactures, which fetched Rs. 15.71 million. Among the prominent importing countries, U.S.S.R. occupied the leading position having absorbed worth Rs. 14.96 million. Hungary, Saudi Arabia, Mauritius, Bahrein Islands and Somalia were the other markets.

Next to cigarettes, Bidis was another item of export which earned Rs. 1.58 million. Malaysia and Singapore were the main markets. Hookah tobacco earned as much as Rs. 6.84 million. Saudi Arabia alone imported worth Rs. 5 million. Other important destinations included Kuwait, Kenya, Bahrein Islands and Maldive Islands. Chewing tobacco, jarda scented tobacco and snuff were the other items of export.

During the first 6 months of 1972-73 (April–September 1972), unmanufactured tobacco exports totalled Rs. 391.31 million as against Rs. 310.52 million in the corresponding period of the preceding year, registering a big increase of Rs. 80.80 million over the export earning during the same period of 1970-71.

Adding to the export effort, M/s. Golden Tobacco Co.; Tobacco House, Vile Parle, Bombay–56, one of the firms engaged in the production and export of tobacco and tobacco manufactures exported, cigarettes to the tune of Rs. 11.5 million and tobacco worth Rs. 3.3 million to overseas markets during the company's year ending June, 1972. The firm's total turnover during the year rose by 3 per cent at Rs. 407.9 million against Rs. 396.1 million in the preceding year.

INDUSTRIAL FASTENERS TO U.S.A.

India's export of nuts, bolts, screws, rivets, and washers amounted to Rs. 9.77 million in 1971-72. A large number of items was exported to overseas markets during this year. Bolts of all types was the main category of export which netted foreign exchange to the tune of Rs. 5.26 million. Sudan, Iran, Sri Lanka, Burma, Iraq, Jamaica, Kenya, Nigeria, Uganda, U.K., USA, Zambia etc. were the prominent destinations. Screws of all types was the next important category which earned Rs. 1.28 million. U.K., Iran, Sudan, Zambia, Arab Republic of Egypt, Malaysia, Burma, Sri Lanka, Hungary, Kenya etc. were the main markets. Besides, the export values of washers of all types and rivets of all types were Rs. 0.86 million and Rs. 0.42 million respectively. Sudan, Zambia, Mauritius, Kenya, Hong Kong, Malaysia, Indonesia, Singapore, Uganda, etc. were the main destinations for washers while Sudan, Burma, Iraq, Nigeria, Sri Lanka, Saudi Arabia, etc. constituted important markets for rivets.

Adding to the export effort of the sector engaged in the manufacture of nuts and bolts and other materials of fasteners type, the Trade Development Authority (TDA), Bank of Baroda Building, New Delhi, has recently secured export contracts for the supply of Industrial fasteners worth Rs. 30 million at its pavilion in the Asia'72 Fair from one of the firms engaged in the line in the United States.

The Shipments are to be carried out by five of TDA's exporting clients. The items of export will be mild steel hex head bolts, carriage bolts and nuts.

Besides this, one more export contract for the supply of hand tools to Canada, valued at Rs. 100,000 was also secured by the STC for one of its client firms. Apart from this, negotiations are in progress with a large number of countries for exports of bicycles, electronic components, surgical instruments, wooden carvings, locks, toys and handtools.

INDIAN PACKAGE WINS WORLD AWARD

India was among the nine award winning countries on the occasion of the World–Packs–Tokyo Pack 1972 which followed the Second World Packaging Congress in September this year at Tokyo. Indian entry has received the coveted award. The award winning entry from India "WIMCO Match Box-Presentation Pack" secured the continental award Asia Star at a competition organised by the Asian Packaging Federation. It also won the India Star 1972 award in a competition organised by the Indian Institute of Packaging, Bombay.

The Indian entry presented by M/s. Western Indian Match Compay Limited, was designed by the Metal Box Company of India Limited, Calcutta. It has a cover design based on the Vedic signs of the Zodiac derived from Indian mythology.

The World Star 1972, organised by the World Packaging Organisation comprises the Packaging Federations of Asia, Europe and North America; 16 Nations all over the world submitted 21 entries for the contest. Most of the Nations were industrial leaders like U.S.A., Japan, Australia, Sweden, Finland, Ireland and Yugoslavia. Very few participants were from among the developing world.

EXPORT PERFORMANCE AND POTENTIAL

TRADE COLLABORATION WITH EAST EUROPE

NEW AVENUES

"Cooperation between India and the East European countries can take new forms like establishment of joint companies for designing, construction and production purposes in the developing countries as well as for joint marketing efforts", stated India's Foreign Trade Minister, Mr. L. N. Mishra while addressing the National Seminar on Trade with East Europe. He said that in the very immediate future, conversion deals in manufacturing areas like woollen textiles and knitwear, automobile ancillaries, nuts and bolts could "trigger off" the fusion of India's planning process with the East European economies.

The growth of India's trade exchanges with the East European countries has been considerable in recent years. The Indian exports worth only Rs. 79 million in 1953-54 to East European countries grew to the level of Rs. 3435 million in 1971-72. The share of these countries in India's export trade increased from 0.9 per cent to over 21 per cent in the comparable years. Similarly, the Indian imports from East Europe have also grown substantially raising their share from 0.4 per cent to about 14 per cent. Indo-East European trade in the last decade rose at the rate of 8.6 per cent as against only 1.1 per cent in the case of trade with the rest of the world.

In terms of composition of trade, apart from the classical products and their newer adaptations, wider avenues of trade have emerged with the growing consumer orientation of the economies of the East-Europen countries. Understandably, there has been a growing demand in the East-European countries for a wide variety of processed consumer goods among the non-classical products. Similarly, India's own import requirements from these countries have been adapted to the evolution of her economic processes.

"There are important and un-explored areas of co-operation through a more rational and optimum international division of labour to our trading pattern", said Mr. Mishra. In the long run, there is a need to move towards a greater adaptation of industrial structures in consonance with changes in comparative costs. While industrial pursuits in many areas may be rendered unproductive in East Europe by increasing labour costs, developing countries like India have the factor endowments, the necessary expertise and the abundance of skilled inexpensive labour for the establishment of various industrial structures. The optimisation of international division of labour need not be restricted to conversion deals. While such deals in selected areas of manufacture can coordinate the planning process in India with East-Europe, it would only herald further co-operation, particularly through the diffusion of technological know-how and processes. Individual enterprises in both countries need to intensify their direct cooperation seeking the application of inter-governmental agreements to actual conditions within their field of competence. Such co-operation could take new forms like joint manufacturing and marketing efforts. The collaboration would have 'direct trade creating effects' since deliveries of complete plants and materials for projects undertaken with the assistance of socialist countries constitute a component of merchandise exports to these countries. Apart from direct and primary trade effects, the multiplier effects of such co-operation would extend to the 'tertiary sector' and spread effects over the rest of the economy.

In defence of the bilaterial trading relationship between the East European countries and the developing countries, India's Foreign Trade Minister felt that the choice between the bilateral and multi-laterial payments mechanisms was not arbitrary and bilateral trading has proved to be a dynamic factor in the economic progress of the third world. The choice between the two mechanisms would depend upon the level of the economic development, international competitiveness of the interested countries and their overall economic policies. Under the present structure of the world economy, the alternative for the developing countries is not a choice between the bilateralism and multilateralism. These countries face a more chronic problem of meeting their balance of payments deficits which hinder the achievement of the desired rate of growth and curtails their efforts to reduce their technological dependence on the metropolitan countries. Within this framework, direct bilateral relations have promoted not only commercial transactions, but have acted as a vehicle in quickening their pace of economic, scientific and technological advancement. "In the context of deteriorating envoirnment of external trade, pragmatism would suggest that during the 'Seventies', developing countries must increasingly rely on widening and diversifying their trading relationship with countries of East Europe", stated Mr. Mishra.

Speaking at the same forum, India's Planning Minister, Mr. D.P. Dhar emphasised that expansion and diversification of India's trade and economic relationship with the socialist countries would continue to be one of the central concerns of the country's foreign economic policies. This would not, however, mean that India would not extend her trade relations with other countries. Trade with other countries will have to be in accordance with the basic requirements of the country's development strategy. Nor would it imply that the trade relationship with either East European or other countries would be static. What is important to recognise would be that the high levels of co-operation attained with the East European Countries would be carried further. "The nationally accepted goals of achievement of self-reliance and removal of poverty, call for a tremendous expansion of productive capacity in strategic industries. The investment effort for undertaking a rapid growth of such industries, the problem of making available capital goods, intermediates and important raw materials for this rapidly advancing sector, the problem of obtaining appropriate technologies and other such factors make it incumbent upon us to evolve a new pattern of trade that can be effectively integrated with the new perspectives of development, both in our country and in the socialist economies", stated the Planning Minister.

ECAFE AND TRADE PROMOTION

"India does not interpret self-reliance as an insular concept, but rather as a practical requirement for every nation that wishes to take its place among the comity of sovereign self-respecting nations", stated India's Foreign Trade Minister, Mr. L. N. Mishra while inaugurating the Intra-Regional Trade Promotion Talks currently held in New Delhi under the auspices of the Economic Commission for Asia and Far East (ECAFE). "Growth for the sake of growth is foreign to our way of thinking. If progress is to have any meaning, it must be progress for all. The sharing of the fruits of economic advancement and the creation of an egalitarian society, forms an integral part of our planning for development".

While India has all along lent her support to the initiatives taken in ECAFE for cooperation within the region, it would be essential to devote increased attention to unfinished tasks of implementation.

Referring to the Third Asian International Trade Fair being held in New Delhi, the Minister stated that the Fair should be viewed as a spectrum of the outstanding problems and possibilities of the Asian continent. Reflecting the various developments that have taken place in the participating countries, the Fair should be indicative of the reservoir of skills and know-how in the different sectors of the countries in the region. From the Indian point of view, ASIA'72 symbolises the fruits of a quarter of century of freedom and planned development. For the last five years, the Indian economy witnessed a period of sustained growth averaging 5 per cent annually. This was made possible largely due to a significant breakthrough in agricultural production. Growth in the industrial sector has also been steady with an impressive increase in product diversification, and notable changes in the volume and structure of the country's foreign trade. Indian exports which tended to stagnate in the fifties, improved in the last decade and are rising along an upward curve. While the share of the African countries in Indian exports has declined, an increasing proportion of our products now goes to countries in Asia, Africa and Latin America.

India's exports to the ECAFE member countries totalled Rs. 3831 million while her imports were Rs. 3613 million in 1971-72.

WOOLLEN EXPORT TRADE BRIGHTENS

The first half of 1972-73 (April-September, 1972) saw a record rise in India's export earnings of woollen products. Valued at Rs. 258.40 million, the export value improved by nearly 46 per cent compared with that in the same period of 1971-72 at Rs. 177.20 million.

Woollen hosiery exports scored higher to reach nearly the previous full year's target (Rs. 120 million) at Rs. 112.30 million. Carpets and allied products were equally active having registered growth to the tune of Rs. 101.10 million against Rs. 65.60 million during the same period of the preceding year. Raw wool exports also rose from Rs. 16.40 million to Rs. 23.70 million. Readymade garments was another area of dynamism—from Rs. 8.10 million to Rs. 90.50 million in these periods. Overseas supply of the fabric sector registered a marginal decline from Rs. 14.40 million to Rs. 9.40 million. Among the less important export categories, shawls and lohis fetched Rs. 1.05 million from Rs. 0.6 million.

The export growth in the hosiery sector was principally owing to larger offtake by the Soviet Union from Rs. 56.70 million to Rs. 91.50 million. Sizable gains were also secured from supplies to poland (from Rs. 2000 to Rs. 7.53 million) and Libya (from Rs. 2.70 million to Rs. 3.27 million).

A sharp rise was recorded in the purchases of woollen carpets and druggets by West Germany (from Rs. 22.10 million to Rs. 41.60 million) and USA (from Rs 15.56 million to Rs. 24 million). Imports by the U.K. and Canada also improved.

Against the background of declining export trade witnessed in the years before, raw wool supplies also registered rise. U.K., U.S.S.R. and Belgium absorbed more quantities of raw wool than before.

The declining trend in respect of woollen or worsted and mixed fabrics was a result of the decreased purchases by Singapore and Hong Kong and a total absence of imports by Yugoslavia and Kenya. While there was no provision of these exports made in the Trade Plan for 1972 with major East European countries, Kenya introduced a quota system for import of woollen textiles (earlier, there was an open licence system in Kenya).

The improvement in the offtake of wool and wool blended readymade garments was owing to the lead taken by USSR in placing larger orders. For woollen blankets, Dubai emerged as an important destination, besides Sudan.

EXPORT TRADE IN BANANAS

Fresh bananas are exported by India in sizeable quantities. Over 3.93 million kg. of this fruit was supplied abroad at a value of Rs. 1.72 million during 1971-72. The maximum exports were effected to Kuwait at Rs. 1.19 million (2.7 million kg). Bahrein Islands and Dubai were the other major markets. In the earlier years, the export value of bananas was far larger; it was Rs. 3.75 million in 1970-71 and Rs. 3.73 million in 1969-70.

Under the current export policy of the Government of India, banana exports are allowed and licensed freely to all categories of shippers and to all destinations except those to the Persian Gulf countries and Iran. To the exceptional destinations, exports are allowed only by established shippers on a quota basis. Additionally, exports are also allowed to these destinations by M/s. Jalgaon District Cooperative Limited, Jalgaon in Maharashtra and M/s. Gujarat State Cooperative and Marketing Federation Limited, Bardoli, District Surat in Gujarat.

There is a proposal to set up Banana Development Corporation which is expected to organise the internal as well as export trade of the fruit. The Corporation, besides organising the marketing of bananas, is to establish rapport with growers who provide technical guidance to the producers in the matters of scientific cultivation and handling, set up packaging arrangements, ensure quality manufacturing and effective packaging as also enter into sales agreements with selected foreign buyers.

To increase the production of exportable varieties of bananas, a scheme has been drawn up under which a tract of 12,000 hectares will be brought under cultivation of bananas by 1973-74. The production so built up is to ensure an annual export trade of 100,000 tonnes of the fruit which should earn an estimated foreign exchange of Rs. 70 million. Out of this, export to Japan is expected to take place substantially in the dwarf cavendish variety.

TRADE WITH NEIGHBOURING COUNTRIES

India's trade relations with the neighbouring countries have improved year after year. Not only the traditional products but a variety of new manufactures and semi-manufactured products are gradually entering into mutual trade exchange pattern.

While commodity-wise statistics in the context of India's trade with Bangladesh are not available and there is no trade with Pakistan since 1965, payment arrangements are generally in free foreign exchange for trade with Burma, Bangladesh and Sri Lanka. With Nepal, however, the payment is in terms of rupees.

In 1971-72, India's export trade to Burma amounted to Rs. 107.80 million while her imports were Rs. 58.70 million. The most important item of the exports was cotton yarn and thread at Rs. 31.30 million. Jute manufactures was the next best item at Rs. 24.40 million. Indian supplies of iron and steel were also prominent at a value of Rs. 22.80 million. Coal, coke and briquettes constitute yet another area of substantial export improvement to Burma, its value having touched Rs. 8.8 million in the year. An interesting feature in Indian supplies to Burma is the growing share of manufactured products. In addition to the iron and steel exports, the supplies of metal manufactures, rubber manufactures and machinery transport equipment totalled Rs. 13.50 milllion.

Rice is the most significant item of import from Burma. Its import value in 1971-72 was Rs. 45.20 million. Lead and tungsten ore accounted for the rest of Indian imports from that country at a value of Rs. 9.30 million and Rs. 3.20 million respectively.

A major diversification in Indian supplies is noticeable in respect of Nepal. In 1971-72, the export value was of the order of Rs. 284.40 million. Cotton fabrics earned Rs. 74.8 million and petroleum products Rs. 53.20 million. The foreign exchange earnings of machinery and transport equipment was of the order of Rs. 20.6 million while medicinal and pharmaceutical products netted Rs. 14.4 million and cement portland grey Rs. 11.1 million. Another line of export in the non-traditional variety relates to metal manufactures whose export value was Rs. 7.10 million. Tea, spices, fruits and vegetables and cotton yarn and thread were the other important items of supply.

India's import trade from Nepal amounted to Rs. 102.70 million in the same year. As in respect of Burma, Nepal also supplied rice in substantial quantity at Rs. 66.4 million. The rest of the products purchased from Nepal included butter, dyeing and tanning and colouring materials, pulses, oil cakes and oil cake meal and oilseeds, oil nuts and oil kernels.

Among the neighbouring countries, Sri Lanka constitutes the second best market for India, next only to Nepal. Exports to this country were valued at Rs. 212.40 million in 1971-72 while imports from Sri Lanka amounted to only Rs. 14.5 million. Machinery and transport equipment were supplied to Sri Lanka to fetch Rs. 54.3 million. Sugar, cotton yarn and thread, fish, spices and cereals were among the other prominent items of supply. On the non-traditional side besides machinery, chemical elements, compounds, medicinal and pharmaceutical products earned as much as Rs. 9 million. Copra accounted for the bulk of imports from Sri Lanka at Rs. 12.3 million.

FOREIGN EXCHANGE FROM JOINT VENTURES

Foreign exchange earnings of India's joint-collaboration ventures abroad so far totalled Rs. 11.43 million by way of dividends, technical know-how fees, managerial fees and related payments. Additionally, the extra exports effected from India towards joint venture projects were of the order of Rs. 68.27 million.

The areas of manufacture and servicing undertaken by the Indian firms in overseas joint ventures mainly included textile mills, paper mills, steel rolling mills, sugar mills, cement plant, oil fractionating plant, pharmaceutical units, soap, vanaspati, glycerine, cycle and scooter joint units, automobile radiators units and hotels.

FOREIGN EXCHANGE QUOTA FOR ASIAN FAIR

Foreign exchange worth Rs. 41.8 million has been sanctioned by the Government of India for purchasing articles exhibited in the stalls set up by foreign countries in the Third Asian International Trade Fair, 1972. The allocation has been made in the form of Fair quota to foreign participants only in order to enable them to dispose of their exhibits to avoid expenditure on packaging, forwarding and on return air-freight etc.

CAST IRON PRODUCTS AND EXPORT TRADE

Cast iron manhole covers, pans, pipes and fittings, scissors, spun pipes and fittings, valves, malleable iron castings and industrial castings are the prominent areas of export trade under the cast iron group. The export business was valued at Rs. 40 million in 1971-72 compared to Rs. 38.7 million in the preceding year.

The most important group of export is the cast iron pipes and fittings whose external trade value amounted to Rs. 15.45 million in 1971-72. U.S.A. was a Rs. 3.6 million market, followed by Tanzania at Rs. 3 million, Singapore Rs. 2.9 million, Kenya Rs. 2 million and Hong Kong Rs. 2.2 million. Next in importance was the category of cast iron manhole covers. Kuwait proved to be the best market for these covers at Rs. 3 million in 1971-72 in which year U.K.'s imports were Rs. 0.7 million and Kenya's Rs. 0.59 million. Cyprus, Hong Kong, Singapore. Tanzania and U.S.A. were among the other buyers. Cast iron spun pipes and fittings also constitute a promising item of export in the cast iron line with Rs. 5.3 million worth of foreign exchange secured. Tanzania was the leading importer at Rs. 3.7 million, followed by Hong Kong Rs. 0.52 million, Singapore Rs. 0.38 million and Malaysia Rs. 0.26 million.

Sudan, Uganda, Tanzania and U.K. were the buyers for cast iron scissors whose total exports were Rs. 0.31 million in 1971-72. In the same year cast iron valves fetched Rs. 1 million, mainly from exports to Iran and Kuwait which accounted for half of the total export trade.

Nearly Rs. 9.8 million worth of foreign exchange was earned by the export of malleable iron castings in 1971-72 against an export value of Rs. 7 million in the preceding year. About one half of the total offtake was absorbed by Czechoslovakia at Rs. 4.78 million. Bulgaria and Hungary were Rs. 1.8 million worth of markets each. U.S.A., Bulgaria and Switzerland were among the foremost buyers of industrial castings whose export trade totalled Rs. 1 million in 1971-72.

EXPORT PICTURE OF PROCESSED FOODS

In the first half of 1972-73 (April-September 1972), India's export trade of processed foods amounted to Rs. 69.32 million. The export target for 1972-73 has been placed at Rs. 178.04 million.

Guargum constituted the major item of export in the period at Rs. 17.23 million accounting nearly for one–fourth of the total export in the period. Next in importance were mango juice at Rs. 10.68 million, non-alcoholic beverages at Rs. 7.80 million, juices, slices and jams other than of mango Rs. 6.47 million, pickles and chutneys Rs. 5.98 million, instant coffee Rs. 5.16 million and baby foods, sweets and malted milk foods Rs. 3.32 million.

In the same period, the export value of instant tea was of the order of Rs. 2.47 million while that of papads was Rs. 1.75 million, walnut Rs. 1.48 million, biscuits Rs. 1.77 million, cocoa products Rs. 1.14 million, canned vegetables Rs. 0.53 million, starch and its derivatives Rs. 0.7 million, and canned as well as frozen meat and poultry products Rs. 0.6 million.

There was a drop in the export of dehydrated onions due to the slump in price in international markets. The export of malted milk food rose substantially due to the export of baby food to Bangladesh.

Interestingly, nearly 69 per cent of the export target set for mango juice for the entire year 1972-73 has already been achieved even in the first half of the year. The percentage achivement in the first half of the year was over 223 per cent in respect of canned and frozen meat and poultry products and 372 per cent in baby foods. Over one–half of the target set for canned vegetables, biscuits and papads was also achieved in the period under review.

EXPORT TRADE IN METAL MANUFACTURES

India's export trade in the manufactures of metals totalled Rs. 33.59 million in 1971-72 as compared to Rs. 27.27 million in the preceding year according to an estimate of the Engineering Export Promotion Council, Calcutta.

A wide range of metal manufactures including builders' hardware, metal chains, cutlery, electrodes and welding equipment, locks and padlocks, sanitary fittings and water fittings and wood screws are already well established in the international markets.

The category of builders' hardware, for instance, has improved its export performance during 1971-72 at Rs. 7.33 million as against Rs. 5.89 million in the year before. The U.K. market has been the most important buyer whose imports of the item rose to Rs. 1.59 million in 1971-72 from Rs. 1.17 million in the preceding year. Kenya and Burma were the other major markets at Rs. 0.9 million and Rs. 0.7 million respectively. Saudi Arabia, Trucial Oman, Sudan, Abu Dhabi, U.S.A., Ethiopia, German Democratic Republic, Iraq and Australia were among the other buyers.

Overseas supply of metal chains reaped a foreign exchange value of Rs. 1.63 million in 1971-72 which was a considerable improvement over the previous year's record of Rs. 0.96 million. The export rise was mainly due to the improved offtake of two principal markets, namely, Singapore and Yugoslavia. These markets absorbed worth Rs. 0.28 and Rs. 0.27 million in 1971-72 in which year a new market emerged in the Arab Republic of Egypt whose import value was of the order of Rs. 0.32 million. Cutlery (table ware) also improved its export supply at Rs. 2.58 million against Rs. 2.00 million in the year reviewed. U.K. and U.S A. respectively absorbed worth Rs. 0.8 million and Rs. 0.68 million.

The export supply of electrodes had almost doubled in 1971-72 to Rs. 2.83 million from Rs. 1.50 million. Sudan, Kenya, and the U.K. proved to be the best buyers. In welding equipment too, the export rise was substantial from Rs. 0.93 million to Rs. 1.49 million. Federal Republic of Germany, Indonesia, Arab Republic of Egypt and Syria were the best buyers.

Locks and padlocks constitute an important segment of metal manufacture's export trade. Their export growth to the level of Rs. 5.64 million is noteworthy against an export earning of Rs. 1.90 million in 1970-71. A notable rise in the foreign exchange earning was mainly due to the sizeable supplies effected to the German Democratic Republic whose import value in 1971-72 was as much as Rs. 2.01 million. German Federal Republic, Yugoslavia, U.K., U.S.A., Czechoslovakia, Hungary, Iraq, Kenya and Syria were the other important purchasers.

Sanitary fittings is yet another area of export dynamism. Its foreign exchange earning during 1971-72 was of the order of Rs. 3.79 million. More than half of the total export in the line was absorbed by Czechoslovakia (Rs. 1.66 million) while Sudan, Switzerland, Kuwait, Indonesia, Kenya, Iraq and USA were the other important buyers.

Water fittings secured Rs. 3.6 million worth of world market in 1971-72 as against their export trade at Rs. 2.65 million in the preceding year. The improvement was especially due to their offtake by U.S.A. at Rs. 0.9 million compared to Rs. 0.6 million. Burma, Czechoslovakia, Iran, Kenya, Kuwait, Sudan, Singapore, Saudi Arabia, Nigeria were the other principal markets.

U.S.A. is the leading market for India's wood screws. The market imported as much as Rs. 1.72 million in 1971-72 while the total exports in the line were of the order of Rs. 2.34 million.

Among the other metal manufactures active in the export trade have been nibs and paper clips, pilfer proof closures, weighing scales and weights. Together, these areas of export growth contributed Rs. 2.16 million to the total export effort in the field of metal manufactures.

EXPLOSIVES AND PYROTECHNICAL PRODUCTS ON EXPORT STREAM

India has started exporting explosives and pyrotechnical products on a limited scale in recent years. Exports of these items earned Rs. 2.22 million in 1971-72 as against Rs. 1.19 million during the preceding year. In 1969-70, the export value was only Rs. 101,500.

In the overall exports during 1971-72, fuses, primers, detonators etc. constituted the major category which earned Rs. 1.68 million. The items exported under this category were detonator containing explosive, plain detonator, detonating fuses, safety fuses, etc. Iran, Singapore, Burma, U.K., Sri Lanka, Thailand were the main destinations. The export earning of these items in 1970-71 was only Rs. 1.07 million.

The next category of export was propellent powders and other prepared explosives which earned Rs. 0.39 million. In this category, gun-powders and other sorts were mainly exported to Dubai, Tanzania Republic, Kenya and Nepal during the year under review.

Under the category of pyrotechnical articles, sparklers etc. were exported. The main markets for these items included Bahrein Islands, Kuwait and South Yemen Republic.

Hunting sports ammunition was the one more category of exports and Burma was the only importing country of this item.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

FOREIGN INVESTMENT IN INDIA

The outstanding foreign official investment in India at the end of 1968-69, 1969-70 and 1970-71 were Rs. 3,585 million, Rs. 3,467 million and Rs. 3,527 million respectively. In terms of Paid-up capital, total investments in the country's corporate sector, comprising both Public and Private sector companies were Rs. 38,603 million in 1968-69, Rs. 39,783 million in 1969-70 and Rs. 43,014 million in 1970-71. While the overall investment figures for the corporate sector relate to paid-up capital in Indian joint companies and do not include reserve and long term loans, the figures of outstanding foreign official investments represent the creditor capital (loans and supplies credits) extended by foreign official and international institutions.

The total foreign assistance utilised during 1970-71 and 1971-72 amounted to Rs. 7,914 million and Rs. 8,200 million respectively. At the meeting of the Aid-India Corsortium held in June 1972, it was agreed that for the year 1972-73, fresh commitments of non-project and project assistance totalling Rs. 9,374 million would be necessary. So far, during the current financial year, India has signed agreements for $ 490.76 million. As far as non-consortium countries are concerned, foreign assistance in the pipeline is being used and financial help from the East European countries is being secured as part of Annual Trade Plans, according to a recent statement made by India's Finance Minister, Mr. Y. B. Chavan.

About $ 874.90 million was advanced to India by International Financial Institution like the World Bank, International Development Agency (IDA) and International Financial Corporation (IFC) during the three years ending 1971-72. The World Bank loans carried a rate of interest of 7.25 per cent per year. The IDA credits were interest free but a service charge at the rate of ¾ per cent was payable. The IFC loan had been given at a rate of 9 per cent interest per annum. The ordinary loans of the Asian Development Bank carried 7.5 per cent rate of interest, while the special loans were given at a rate of 1.5 per cent to 3 per cent.

FULL CAPACITY OUTPUT OF OIL REFINERIES

The nine oil refineries in the country processed 16.31 million tonnes of crude during the first ten months of 1972 as against the anticipated level of 16.11 million tonnes. The percentage level of performance was thus 101.3.

The four refineries operating on indigenous crude oil, viz., Digboi, Gauhati, Barauni and Koyali processed 6.15 million tonnes as against an expectation of 6.06 million tonnes. The percentage achievement in the case of these refineries was 101.6.

During the first ten months of 1972, over 15.68 million tonnes of major petroleum products were sold and consumed, marking an increase of 9.5 per cent over the corresponding period last year.

COCONUT DEVELOPMENT

Total area under coconut in India has almost doubled during the last 20 years. The development efforts in the area proved helpful in substituting imports. As against 88,100 tonnes of copra valued at Rs. 77.9 million in 1963-64, only 28,000 tonnes valued at Rs. 38.4 million was imported in 1966-67. In 1970-71, the imports further declined to 17,400 tonnes valued at Rs. 31.8 million.

Coconut is extensively grown throughout the coastal belt of the country covering an area of 1.04 million hectares and bringing in an average annual yield of nearly 6078 million nuts.

Nearly 80 per cent of the coconuts produced in the country are consumed by the domestic sector and the remaining 20 per cent are utilised in soap and toilet industry. Coir manufacture is another major industry developed in the country, especially in Kerala. Industries like desiccation of coconut and production of coconut shell flour are catching up.

Among the coconut growing States, Kerala, Tamilnadu, Mysore and Andhra Pradesh account for over 90 per cent of the total area under the crop. In Kerala, which is the largest coconut growing State, the area under this crop is of 7,19,100 hectares. Kerala alone produced 3981.2 million nuts, according to 1970-71 estimates.

Over the plan periods, concerted efforts, have gone into the various aspects of coconut development, including cooperative production, disease control, organisation of demonstration plot, grading and organised marketing. During the Third Plan, (1961-66), short term measures like promotion of fertiliser-use and extension of irrigation facilities were taken up. The Fourth Plan initiated establishment of isolated seed gardens and use of hybrid coconut seedlings. The gap in domestic demand and supply is filled by import of copra and substitute item such as mutton tallow and palm kernel oil.

Systematic attention is paid to coconut research. Many advances have since been made through various Institutes. Since widespread coconut diseases, especially root-wilt disease, are attacking the crop, production of disease resistant varieties is given priority in the research programme.

POLICY ON FOREIGN OIL COMPANIES

The Government of India are understood to be setting up proper machinery for discussion with foreign oil companies to elicit information on their offers for equity participation. On the basis of these discussions, the government would be able to take final decision in regard to acceptance of their proposal for nationalisation of these companies.

It would be premature to say at present what amount of foreign exchange would have to be paid in the event of nationalisation of these oil companies. "We have not come to conclusion to nationalise these companies. But that alternative is not ruled out. Other alternative of equity participation is also being discussed and we are eliciting information from companies so that on basis of full material, we will be able to come to decision as to which alternative is best, stated India's Minister of Petroleum and Chemicals recently.

Foreign oil companies had in recent years been making substantial remittances on account of dividends by drawing heavily on their reserves. With a view to checking this trend, Government took decision in April, 1972, under which remittance facilities in respect of dividends declared by hundred per cent foreign owned companies, wholly or in part, out of reserves, would be conditional on India's Reserve Bank being satisfied (a) that the reserves had been drawn upon only for maintaining dividend quantum at average of previous five years or at ten per cent of paid up capital, whichever was more; (b) that drawal on reserves did not exceed ten per cent of total of paid up capital and free reserves of company at the beginnings of a year and (c) that the balance of free reserves left after drawal did not fall below fifteen per cent of the total of paid up capital and reserves as in (b) above.

EXPANSION PLANS FOR NYLON YARN

A number of letters of intent have been issued to States Industrial Development Corporations in India for setting up plants for the manufacture of nylon textile filament yarn.

The states to which these letters of intent had been issued were Gujarat, Mysore, Tamilnadu, Andhra Pradesh, Kerala, Madhya Pradesh, Punjab, Haryana, Bihar, Orissa, Assam, Uttar Pradesh and West Bengal. These letters of intent were for units of 2100 tonnes per annum capacity, each of nylon textile filament yarn.

A letter of intent was also issued to the Indian Petrochemicals Corporation, a public sector undertaking of Central Government, to set up 12,000 tonnes per annum acrylic fibre plant in Gujarat. Besides, the Government approved in Public Sector, a polyester filament yarn project of 3,500 tonnes per annum capacity to be set up in Gujarat in collaboration with cooperative yarn users and 30,000 tonnes polyester staple fibre project in Assam. Government had not, however, taken any general decision to set up synthetic fibre plants only in public sector.

CHARGE ELIMINATOR DEVELOPED

A sample and effective static charge eliminator with the help of radioisotopes has been successfully developed by the Isotope Division of the Bhabha Atomic Research Station, Bombay recently.

The developed eliminator has been installed at the factory M/s. of Indian Detonators, Hyderabad for nutralising static electricity produced during the sieving operations of pentaerythritol tetranitrate, an explosive material. In dry weather, most of these explosive materials generate enormous amount of static electricity, sometimes upto 10 Kilovolts. Many times, the static electricity sparks off explosions rendering operations in explosive factories hazardous.

The developed device ionises air passed through it and this, when blown over the zone where the explosive mixtures are handled will dissipate the static charge and thus eliminate the sparks igniting explosives.

PROCESS FOR MINERAL OIL

'MINERALKOTE-204', a mineral oil having viscosity 13.0 centistrokes (kinematic viscosity) at 37°C fortified with suitable corrosion inhibitors for light preservation of mild steel, light alloy steel and cast iron components/sheets, machinery parts etc., against atomospheric corrosion has been developed by the Defence Research Laboratory (Materials), Kanpur.

'Mineralkote-204' is suitable for corrosion prevention of components during fabrication, transportation from one place to another and during short term preservation (storage 3-5 months) in industrial, subtropical, hot and humid atmospheres.

The process involves only grinding of certain ingredients and then mixing in oil and packing.

'Mineralkote-204' has been exhaustively and successfully tried in technical-cum-users trial in ordnance factories and preservation of gun barrels. Annual demand of the developed mineral oil is estimated at 4 million litres.

The main equipment required for the production of developed Mineral Oil are electric stirres, M. S. drum—200 litres capacity and Weighing balance (physical).

CHEMICAL RESISTANT CEMENT

An improved formulation of potassium silicate based chemical resistant cement has been successfully developed by the Central Building Research Institute (CBRI), Roorkee.

Sand, fluorides and the chemical in the required proportions are ground together in a ball mill to the desired fineness. The fineness of this powder which may be called the filler, is a very critical property. The Filler is packed in water-proof gunny bags.

Potassium silicate is dissolved in water to make a solution of a particular sp. gr. Silicate generally available in the market varies in its potassium oxide and silicon-di-oxide ratio. It is important to use the material of a particular composition. For the best results, sq. hr. of the silicate solution has to be adjusted within a narrow range. The 'Solution' is packed and sealed in bitumen coated steel drums.

The two components viz., the 'filler' and the 'Solution' are mixed generally in the ratio of 3:1 (by wt.) in the form of a mortar of workable consistency before use with bricks and tiles.

The "Improved Formulation" conforms to the I.S. Specification 4832 : 1969. The novel features of the developed cement are that the 'Improved Formulation' has about 250 Kg/Cm^2 compressive strength and 7.5 Kg/Cm^2 bond strength as compared to 150Kg/Cm^2 and 4.5 Kg/Cm^2 respectively for the best commercially available cement. The 'Improved Formulation' has lower permeability to liquids than shown by commercial samples. It unlike commercially available cement, does not shrink, deform or crack and retains its normal strength whether submerged in acids or kept dry. It sets into a hard mass within 3-4 hrs. and does not have any setting irregularity as shown by the commercial samples. It has high adhesive power, simplicity of use and is unaffected by fluctuations in temperature and humidity and has high resistance to hydrochloric, nitric and sulphuric acids and organic acids of all cocentrations, salt solution, aliphatic and aromatic hydrocarbons, alcohols, ketones, chlorinated hydrocarbons, fats, oils and wet and dry oxidising and reducing gases.

The commercially available cements generally did not conform to the I.S. specification 4832 (Part I)–1969 for chemical resistant mortar (Silicate type) particularly with regard to the most important properties viz., bond strength and chemical resistance. With the growth of chemical industries in the country, demand for construction materials, resistant to various chemicals has been increasing. Sodium and potassium silicate based cements have been known as good acid resistant materials.

During the last 3 years indigenously available potassium silicate based cements were evaluated in the institute for various physical properties and chemical resistance.

The main raw materials required are quartzitic sand, potassium silicate, a combination of fluorides and a chemical. The exact chemical compositions and proportions of these materials in the 'New Cement' constitute the know-how and can be made known only to the parties obtaining a licence for manufacturing this cement.

DEVELOPMENT OF CLOFIBRATE

Ethyl 2-(P-Chlorophenoxy)-2 methyl Propionate (Clofibrate) has been developed by the National Chemical Laboratory, Poona. Clofibrate is a valuable drug used in the treatment of atherosclorosis and coronary artery diseases.

The process consists of two steps viz. (1) 2-(p-chlorophenoxy)-2 methyl propionic acid is prepared by the condensation of p-chlorophenol, acetone and chloroform in the presence of sodium hydroxide, (2) Estrification of the above acid is then carried out with ethanol and conc. sulphuric acid to obtain the finished product-Clofibrate. The process has been standardised on 1 Kg./batch scale. The product has been tested by analysis and found comparable to the imported product.

The Raw materials required in the process are: p-Chlorophenol; chloroform; acetone; sodium hydroxide; benzene, conc. HCI; absolute alcohol; con. Sulphuric acid and sodium bicarbonate are the main raw materials required for the manufacture of Clofibrate. Except p-chlorophenol, all the other raw materials are indigenously available. The major items of plant and equipment required for the production of Clofibrate are Reactor (SS) steam jacketted with reflux condenser, separator, vacuum pump, stirring motors, filter Nutche, glass reactors, heating mantles, distillation column with fractionating head condenser and receiver and drier etc. All these are either indigenously available or can be fabricated in the country.

The product is not manufactured in the country at present and the domestic requirement is met through imports. It is imported under the trade name Atromid S (ICI). The present annual requirement of the drug has been estimated at about 3 tonnes.

PAPER INDUSTRY
A REVIEW

Indian Paper industry has registered substantial progress during the last two decades. Today, the industry is in a position to produce all types of papers and paper boards indigenously. It meets a major share of domestic requirement of paper and paper products. This is also evident from the fact that the country's import bill of paper and paper products, which was of the order of 20.85 per cent of the total domestic requirement in 1950-51, came down to a level of 6.25 per cent in 1961-62 and further reduced to only 2 per cent in 1970-71. Today, the total production of the paper industry has recorded seven-fold increase as compared to the production in 1950-51. During the period of the last two decades the annual rate of growth of the industry was recorded at 11 per cent.

The present annual installed capacity of paper and paper-board stands at 880,000 tonnes and the actual production is of the order of 760,000 tonnes. The production range includes writing paper, printing paper, wrapping paper, packing paper and paper-board. Of the total paper production, nearly 60 per cent is for printing and writing purposes while 21 per cent is for packaging and wrapping, 17 per cent for paper-board and the rest for special varieties. In 1971, there were 59 units engaged in the production of paper and paper–board in the organised sector and their actual production in the year was recorded at as much as 774,760 tonnes. In 1970, the number of units engaged was 57 and their production was 759,260 tonnes. In the newsprint sector, there was only one unit engaged in 1971. As against its installed capacity of 75,000 tonnes in that year, the actual production of newsprint was of the order of 40,100 tonnes. In 1970, against the same installed capacity the newsprint production of the unit was 37,340 tonnes. Outstripping the installed capacity of 21,500 tonnes (1971) of paper grade pulp, the sole unit engaged in the organised sector achieved record production of 22,230 tonnes of paper grade pulp in 1971. Two units were engaged in the production of pulp in 1971 in the organised sector and their installed capacity was placed at 87,000 tonnes. Their actual production of pulp in that year was 54,000 tonnes.

With the increase in educational facilities, rapid industrial development of the country and general improvement in the standard of living during the period of planned economic development, the paper industry's production activities expanded considerably and diversified to meet the growing demand. It is estimated that the domestic demand for paper and paper-board would touch a figure of 1.1 million tonnes by 1973-74. Creation of additional capacity in the industry for realising this target would involve an additional investment of Rs. 2400 million. This would also necessitate the procurement of additional cellulosic raw material of the order of 1 million tonnes per year. Already, a crash programme for the production of paper and paper-board has been instituted. It is now expected that an additional production of about 100,000 tonnes would be available by the end of 1972. The proposals to set up 2 units in the public sector, one in Nagaland with an annual installed capacity of 3000 tonnes of writing and printing paper and the other in Assam having the installed capacity of 8000 tonnes of pulp and 5000 tonnes of writing and printing paper are under progress.

Apart from hardwoods, efforts are being made by the industry to make use of non-wood raw materials, bagasse and wheat straw in the manufacture of pulp and paper. Many of the states in the country have undertaken plantation of eucalyptus through their forest departments with a view to provide cellulosic raw materials for pulp and paper industries. In some cases, forest departments in the states have agreed to give long term leases of less developed forests for exploitation and development by the existing paper mills At present, almost all the paper mills in the country adopted sulphate process for pulping the cellulosic raw materials. Apart from giving compartively stronger pulp, the sulphate process has got an inherent advantage of being capable of using salt cake which is a by-product of rayon industry as a make-up chemical.

As part of planned development programme of the paper industry, fabrication of paper mill plant and machinery has been taken up in recent years. In the organised sector, there were 13 paper machinery manufacturing units in 1971 with total installed capacity worth Rs. 65.6 million. Their total production of pulp and paper machinery during that year was of the order of Rs. 51.6 million. In the preceding year, as against their installed capacity of Rs. 60.6 million, their actual production was recorded at Rs. 34 million. In fact, regular production of pulp and paper machinery was started in the country in 1960. The units mainly manufacture the broad type of equipment which include complete small scale paper plants, complete broad mill plants, paper coating plants, tissue making plants, fourdrinier wire cloth, brown stock washing system, screens, refiners, elastic calendar bowls etc.

To meet the growing demand in the recent years for paper and paper based packing, it became necessary to expand the existing paper mills and to establish new units with high capacity ranging upto 150/200 tonnes per day. To meet this demand the Government of India invited applications in early 1971 from the entrepreneurs in the line. As a result, several new schemes for manufacture of 150-200 TPD paper plants including that of M/s. Jessop and Co., Calcutta, have been approved. Today, the industry is capable of manufacturing complete large scale pulp and paper making plants. The import content in the industry has been gradually reduced and now it is only 30 to 35 per cent for complete paper plants upto TPD capacity.

Inspite of near self-sufficiency stage achieved by the paper industry in the production, India has to import annually newsprint paper. In 1971-72, the country imported newsprint paper over 2,06,855 tonnes valued at Rs. 275.85 million. Canada was the major supplier at a value of Rs. 117 million, followed by USA at Rs. 64 million and USSR at Rs. 56 million. Although indigenous newsprint is manufactured by M/s. National Newsprint and Paper Mills Ltd., Nepa Nagar, the quantum of newsprint manufactured indigenously is not sufficient enough to meet the internal demand. Consequently, a new plant in the mill has been erected to maximise the present production. However, since the pulping unit of the erected mill has not been established, the level of production remained unchanged. With the commissioning of the newly erected plant the Nepa Nagar Mills' full capacity is likely to be 75,000 tonnes.

Apart from meeting the domestic demand, the industry exports annually a wide range of paper and paper products. During 1971-72, the total exports of the industry amounted to Rs. 29.41 million. During the year, the category of paper and paper-board, fetched foreign exchange to the tune of Rs. 14.26 million. Of this, printing and writing paper earned Rs. 7.62 million while fibre boards and other boards of wood-pulp fetched Rs. 2.40 million. The export value of other items was : Machine made paper and finished paper boards Rs. 2.06 million; Cigarettes paper Rs. 1.55 million and paper and paper board in rolls and sheets Rs. 0.59 million.

The articles made of pulp, paper board brought in as much as Rs. 15.16 million in foreign exchange. A large number of items was exported in this category during the year. Cigarette paper (cut to size) constituted the main item which earned Rs. 6.00 million. Besides, exercise books and registers earned Rs. 2.60 million, paper bags, paper board boxes and other containers Rs. 1.06 million, carbon papers Rs. 1.76 million, etc. In addition to these items, duplicating papers, other copying papers, blotting or filter paper, paper rolls for calculating and statistical machines etc. were the other items of export.

Nepal, Iran, Afghanistan, Singapore, Uganda, Vietnam Republic, Arab Republic of Egypt, Bahrein Islands, Dubai, Kuwait, Kenya, Saudi Arabia Qatar, Sri Lanka etc. were the prominent destinations for paper and paper board items while Arab Republic of Egypt, Nepal, Afghanistan, Tanzania Republic, Malaysia, Vietnam Republic, Uganda etc. were the important importing countries for articles made of pulp, paper or paper board. The country has now started exporting paper and pulp making machinery on a limited scale in recent years. ☐

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INCREASING EXPORTS OF AUTOMOBILE TYRES AND TUBES

The export value of automobile tyres and tubes has been increasing from year to year. Their foreign exchange earning rose from Rs. 41 million in 1969-70 to Rs. 55 million in 1970-71, and further to over Rs. 70 million in 1971-72. This dynamic sector of rubber manufactures has been supplying its products to several countries of the world, of which the important ones are Burma, Mauritius, Iran, Iraq, Arab Republic of Egypt, Greece, Fiji, Kenya, Sudan, Kuwait, Nepal, Australia, Rumania, Uganda, U.S.A., U.S.S.R. and Yugoslavia.

M/s. Madras Rubber Factory Ltd., Dhun Building, 175/1, Anna Salai, Madras-2, one of the manufacturers in the line, are contributing substantially to the export earning. Their exports are valued at Rs. 6 to 7 million per annum and are directed to various countries in Europe, West Asia, Africa and Far East. The Madras firm is also exporting to sophisticated markets such as the U.S.A. The first order from U.S.A. was secured by the firm in 1968 for the supply of special "custom-made tyres" for antique and classic cars, often used in show races where highly ornamental cars cruise at speeds exceeding 100 miles per hour. The export range of the Madras firm to U.S.A. to-day includes a wide range of new tyres such as Boat Trailer tyres, Minibike tyres, Mobile Home tyres etc. To its credit, the firm received special Export Award from the Chemicals and Allied Export Promotion Council, Calcutta, for 1968-69 for its achievements on the export front. In June this year, the firm also received a Certificate of Merit from the Government of India for being the best tyre exporter for the year 1968-69.

Tyres and tubes constitute the largest single area of rubber manufactures in the country accounting for about 50 per cent of rubber consumption. The production of various types of tyres and tubes during 1970 and 1971 respectively was : giant tyres (2.1 million and 2.29 million numbers); giant tubes (1.7 million and 2 million numbers); motor tyres (966,000 and 120,760 numbers); motor tubes (1.02 million and 1.25 million numbers); motor cycle tyres (166,000 and 180,000 numbers); motor cycle tubes (194,900 and 207,140 numbers); scooter tyres 437,000 and 475,300 numbers); scooter tubes (326,000 and 385,600 numbers); tractor tyres (186,500 and 212,400 numbers) and tractor tubes 181,200 and 204,892 numbers. Besides, the industry turns out A.D.V. tyres and tubes, aero tyres and tubes etc.

The production capacity is being raised from the present level of 5.5 million numbers to 8 million numbers by 1973-74. Additionally, the existing units are also implementing expansion programmes. The tyres and tubes industry is one of the 54 priority industries in India that have been permitted to raise production to double the present licensed capacity.

EXPORT UPTREND IN WOOLLEN CARPETS

India's export trade in wool and woollens has recorded a consistent growth. Its value rose from Rs. 193.10 million in 1966-67 to Rs. 214.30 million in 1967-68, Rs. 262.38 million in 1968-69, Rs. 264.76 million in 1969-70, Rs. 325.70 million in 1970-71 and Rs. 345.20 million in 1971-72. In the first half of 1972-73, the export value was Rs. 258.40 million as against Rs. 177.20 million in the same period of the previous year. The two major categories of export improvement have been hosiery and carpets. Woollen hosiery exports earned Rs. 27.48 million in 1966-67 and Rs. 39.92 million, Rs. 62.20 million, Rs. 53.75 million, Rs. 121.47 million and Rs. 137.72 million respectively in the following five years. Woollen carpets, druggets and numdahs earned Rs. 80.74 million, Rs. 96.59 million, Rs. 106.46 million, Rs. 113.29 million, Rs. 104.45 million and Rs. 123.34 million.

The Federal Republic of Germany has recently emerged as the best market for carpets, preceding even the U.S. market, which had been the top importer so far. The German market absorbed Rs. 37.90 million worth in 1971-72, as compared to Rs. 19.40 million in 1970-71. USSR is a new important market with an offtake of Rs. 7.19 million in 1971-72.

Claimed to be the first Indian exporter qualified to use the International Wool Secretariat's 'woolmark' on their hand-knotted carpets and the recipient of National Award for Outstanding Exports in the line, M/s. Obetee Pvt. Ltd., Mirzapur (UP), were the top exporters in India at Rs. 8.9 million in 1971-72. They are the largest Indian carpet suppliers to U.S.A. and substantial exporters to Canada and Australia. While actual designs are provided to them by overseas buyers, they have their own designers who mainly produce designs used by the French, Aubusson, Chinese and Persian. They produce carpets only from mill yarn and use chrome dyes that are suitable for dyeing woollen yarn. Their factories are maintained for dyeing the yarn, making scale plans, clipping and carving the carpets and packing and baling them for despatch. The factories are also used for issuing materials to the weavers and receiving and inspecting the carpets when they arrive from the loom as also subjecting them to thorough examination for weight, depth of pile, number of knots, colour and design.

Another Mirzapur firm, M/s. E. Hill & Co., Pvt. Ltd. exported carpets worth Rs. 6.2 million in 1971-72. Their product range includes hand-knotted woollen carpets, rugs and broadlooms. They can take orders of any size upto a width of about 40 metres. Their types and designs include, Oriental, Chinese, Aubusson and Modern as also Bokhara, Persian and Afghan varieties. This firm's carpets are also qualified to carry 'woolmark'.

M/s. Tribhuwanchand Shivchand, Varanasi (U.P.) is another important exporter in the line of carpets having secured Rs. 4.5 million during 1971-72. Their product range also includes hand-knotted woollen carpets, rugs, broadlooms and druggets. Their designs are mostly cashmere, Persian, Afghan, Aubusson varieties.

From Varanasi there are quite a few other exporters who have made a mark in carpet exports.

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They include M/s. Khan Carpets, Bhadohi, whose export value was Rs. 4 million in 1971-72 and whose firm orders for 1972-73 totalled Rs. 8 million. With an export performance of Rs. 2.6 million, M/s. Abbas Vazir Pvt. Ltd., Bhadohi have export experience to several countries including U.S.A., Canada, West Germany, Belgium, Australia, Japan and Hong Kong. Yet another firm, M/s. Mohammed Ibrahim Azimullah, Bhadohi have to their credit and export value of Rs. 2.2 million in 1971-72. Their important customers include departmental and chain stores as well as wholesalers. Situated at Ghosia (Post Aurai) in the district of Varanasi, another exporter M/s. Motilal and Brothers secured export orders worth Rs. 5 million for the current financial year 1972-73 while their export value in 1971-72 totalled Rs. 1.8 million. One more prominent exporter at Bhadohi is M/s. Kishore Chand Khanna & Sons. Their export earning in 1971-72 was in the range of Rs. 2 million. They have supplied carpets to the Queen of England and King of Nepal.

EXPORT ORDERS BY TDA

India's Trade Development Authority pavilion at ASIA '72 envisaged to book export orders worth Rs. 60 million by the time Fair ended.

On December 10, 1972, new export orders worth nearly Rs. 3 million were booked by the Authority at the Fair. These orders are for locks and padlocks, hardwares, stainless steel cutlery and tyre inflaters. The countries of import are USA, Canada, Sweden, West Germany, the Netherlands and Iran.

Latest booking brought TDA's total export orders since the Asian Fair opened to Rs. 23.3 million.

In addition to spot orders, ten enquiries worth Rs. 15 million are under negotiation in respect of bicycles and parts, electronic equipment and components, wood carving, hand and small tools, sanitary fittings and toys for export to USA, Canada, France, UK, and Jordan. Besides, there are 84 enquiries for electronic components and equipment, readymade garments, leather garments and accessories, auto ancillaries and sports goods for export to USA, Canada Japan, Hong Kong, West Germany, Netherlands, GDR, Sweden, Greece, Belgium, Australia and Bangladesh.

COMMERCIAL DEALS AT ASIA '72

The total value of export deals concluded with participant countries in the Asia 1972 Trade Fair came to Rs. 254.12 million as on December 10, 1972. The orders were received from USSR, Czechoslovakia, Poland, West Indies and Canada. Besides, a large number of trade enquiries were received, the value of which would run into several millions of rupees.

The value of deals entered into for import of foreign goods came to Rs. 158.67 million on that date. The import agreements were for the purchase of items such as steel, muriate of potash, railway wheels, printing machinery etc. from USSR, German Democratic Republic, Hungary and Czechoslovakia.

TRIAL ORDER FOR BENZOIC ACID

India exports a wide variety of chemicals and chemical based products. Their export value in 1971-72 totalled Rs. 72.32 million. Of this, organic chemicals contributed Rs. 33.29 million, while the share of inorganic chemicals was Rs. 39.05 million. Overseas importers of Indian chemicals even include sophisticated markets of West and East Europe, Japan and U.S.A.

In the broad range of chemicals that India has been able to export, benzoic acid has emerged as a promising item. Till recently, sizable foreign exchange has had to be spent on its imports. In the last year or two, its domestic production has improved to meet indigenous demand and even leave surplus for export.

Recently, M/s. Morani Chemicals Private Limited Bombay, a firm engaged in the manufacture of the above acid secured a trial order for the supply of 5 tonnes of benzoic acid B.P. to the United Kingdom. The shipment has already been effected.

In 1971-72, India exported Benzoic acid to U.S.A. valued at Rs. 23,000.

The firm has set up a plant near Bombay in 1970 to produce Sodium Benzoate besides the acid. The plant has a capacity of producing 900 tonnes of these chemicals annually. The firm itself has developed the process for the manufacture of Benzoic acid without any foreign assistance and the entire plant and machinery required for the process has been fabricated indigenously.

Benzoic acid was imported by India to the tune of 174 tonnes, valued at Rs. 0.7 million in 1970-71. In the following year, the import value was Rs. 168,918 (36 tonnes).

TRANSFORMERS TO TANZANIA

Indian transformers have come to establish in world markets. Supplied in a variety of specifications, their export in 1971-72 fetched Rs. 16.52 million as against Rs. 9.30 million in the preceding year.

Among the various types of transformers exported during 1971-72, transformers up to 37 PT 5 KV (rating up to 3000 KVA) constituted the main category which earned as much as Rs. 13.47 million, accounting for more than 80 per cent of the total export earning of the items. In the preceding year, the export value netted by this category was of the order of Rs. 7.26 million.

Malaysia with an intake valued at Rs. 4.59 million retained its position of the leading buyer as in the previous year. Sri Lanka was the next best destination having absorbed worth Rs. 2.18 million, followed by Guyana at Rs. 2.02 million, Tanzania Republic at Rs. 1.39 million, Thailand at Rs. 0.89 million and Dubai at Rs. 0.79 million. Besides, Burma, Singapore, Sudan, Uganda and Zambia were the other important destinations.

Transformers up to 37 PT 5 KV (rating up to 5000 KVA) constituted the second important category which earned Rs. 1 29 million in 1971-72 as against Rs. 0.52 million in the preceding year. Nigeria with an intake worth Rs. 0.65 million topped the list of buyers, followed by Uganda at Rs. 0.30 million and Tanzania Republic at Rs. 0.15 million. Malaysia, Arab Republic of Egypt, Sudan and Iran, were prominent among the other importers.

In addition to these principal categories, the export earning of the other categories of transformers was : Rs. 0.71 million for transformers above 37 PT 5 to 66 KV (rating above 10000 KVA) and Rs. 0.58 million for transformers upto 37 PT 5 KV (rating above 5000 to 10000 KVA). Transformers above 37 PT 5 to 60 KV (rating upto 3000 KVA), above 66 to 132 KV (rating upto 3000 KVA), above 66 to 132 KV (rating 5000 to 10000 KVA), above 66 to 132 KV (rating above 10000 KVA) etc. were also exported during the year.

Recently M/s. Transformers and Electricals Kerala Limited, Angamally P. O., Ernakulam District, Kerala, one of the firms engaged in the line, secured an export contract from M/s. Tanzania Electric Supply Company Limited, Tanzania for the supply of two numbers of 50 MVA 132/33/11 KV transformers valued at Rs. 2.00 million. These transformers are to be fitted to the Diesel Power Plant Extension at Obungo near Dar-Es-Salaam. The export order was won by the Kerala firm against stiff international competition in collaboration with the Indian Consortium for Power Projects, Delhi.

In the organised sector, there were 23 units engaged in the manufacture of transformers in 1971. As against the installed capacity of 6.27 million KVA in the year, the production was of the order of 8.69 million KVA. During 1970, against the same installed capacity, the production was 7.61 million KVA.

IRRIGATION CONSULTANCY TO AFGHANISTAN

Worth about Rs. 3 million, India's Water and Power development Consultancy Services Limited has recently signed an agreement with the Royal Government of Afghanistan for providing consultancy services for the Khanabad Irrigation Project in that country. The project is estimated to cost $ 6 million and is financed by the World Bank. In terms of foreign exchange, the order secured by the Indian firm is valued at $ 0.4 million.

Earlier, the above consultancy organisation M/s. WAPCO provided consultancy and supervision services to Da Afghanistan Moassessa Breshna for their Bamiyan, Phule – Khumri and other Micro – Hydel Schemes.

AGARBATTIS ON EXPORT FRONT

India's export of Agarbattis during 1971-72 amounted to Rs. 14.12 million as against Rs. 12.75 million in the preceding year. In 1969-70, the export earned foreign exchange worth Rs. 10.07 million.

During 1971-72, U.S.A. was the leading destination having absorbed worth Rs. 4.08 million. The next best destination was Ethiopia whose intake was valued at Rs. 1.38 million, followed by Singapore at Rs. 1 20 million, Nigeria at Rs. 0.88 million, U.K. at Rs. 0.61 million, Kenya at Rs. 0.44 million, Malaysia at Rs. 0.36 million, Nepal at Rs. 0.34 million, Federal Republic of Germany at Rs. 0.32 million. Lesotho at Rs. 0.32 million, Saudi Arabia at Rs. 0.27 million, Sudan at Rs. 0.26 million, Australia at Rs. 0.25 million and France at Rs. 0.20 million. Besides, Fiji Islands, Canary Islands, Japan, Iraq, Kuwait, Mauritius, Sudan, Uganda, Switzerland and Zambia were the other prominent markets.

Adding to the export effort M/s. Mysore Sugandhi Dhoop Factory Private Limited, Commercial Chambers, Post Box No. 3178, Bombay-3, one of the firms engaged in the manufacture of agarbattis and incense secured export orders over Rs. 2.00 million during 1971-72. The varieties of agarbattis exported during the year range from traditional rose, sandalwood and jasmine to fruity lemon and strawberry as also other exclusive products.

The firm's products are claimed to be popular in more than 70 countries of the world. They have been exporting these products since 1934. The firm was awarded an Export Award during 1970-71 by the Basic Chemicals Pharmaceuticals and Soaps Export Promotion Council, Bombay.

EXPORT PERFORMANCE AND POTENTIAL

INDIA'S COMMERCIAL RELATIONS WITH EEC

India has all along welcomed the European Integration Movement and hoped that a more prosperous Europe would be able to contribute more generously towards world prosperity in general and share increasing concern for the problems of the poorer countries. When the Rome Treaty, establishing the European Economic Community, came up for examination in the GATT, India welcomed the establishment, provided there were reasonable guarantees that they would pursue policies which would contribute to the expansion of global trade and not merely the trade of the member countries.

India's concern for an outward looking policy of EEC would be evident from the pattern of its trade with India. A chronic and serious adverse balance characterises the two-way trade. The belief that the large trade gap deficit that India has with EEC is on account of aid-financed imports from its member countries is not true. The actual flow of aid from these countries constitutes only 50 per cent of India's trade deficit. During 1970-71, while net flow of aid from the community was Rs. 338 million, the trade deficit was close to Rs. 1098 million. This pattern of commercial relationship involving large outgo of foreign exchange cannot be viable in the long run.

A picture of the Community's trade with other developing countries is not very encouraging. The intra-EEC trade, as a share of global trade, increased from 9 per cent in 1960 to 14 per cent in 1970. On the other hand, the share of imports from the developing countries to the Community declined from 35 per cent in 1960 to 30 per cent in 1970.

No doubt, the Community has not been totally silent to India's trading problems. India's efforts in the past have yielded some positive results. In 1964, the Community decided to completely suspend customs duty on tea. They also suspended duties on products like cashewnuts, shellac and certain spices. In the post-Kennedy Round, they abolished duty on East India Kips. Under bilateral arrangements of cotton textiles, India has been granted sizable quotas. The decision taken by the Community to accord special treatment to handloom and handicrafts deserves special mention. The E.E.C. was in the vanguard of nations to implement the General Scheme of Preferences, from which some benefit can be derived if India's production base is organised more scientifically.

The question however is : how far have the liberal trade measures taken by the Community in regard to India been adequate ? How do they compare with the treatment accorded to countries of Africa and those covered under the Conventions of Yaounde and Arusha? The chronic and serious adverse balance of trade that India has with the Community to a large extent, answers this point.

There has been indequate progress over the years for securing reasonable access for many of India's important and sensitive products. Jute and coir are the two foremost examples. The Community is aware that European jute and coir industry needs to be re-adapted to changing factor endowments and efficiency in production. The protection accorded to their inefficient jute and coir industry through high tariff and indirect non-tariff barriers is, therefore, difficult to understand. A less liberal treatment for access of jute only serves the cause of synthetics.

In the broadest sense, India's problems with the Community are two-fold the first relates to the residual problems, in regard to jute and coir which have eluded solutions for several years. The other arising out of the enlargement of the Community which both accentuates the problem in respect of jute and coir as well as creates fresh problems for a wide range of other commodities.

In the context of the enlargement of the Community, the negotiating sides have declared their determination to extend and strengthen the trade relations with the Commonwealth developing countries of Asia. Currently, India is negotiating the safeguard measures for products than are likely to be affected adversely by the enlargement of the Community. The Indian Government handed over a detailed *aide memoire* both to the United Kingdom Government as well as the EEC Commission explaining the difficulties that would arise from the enlargement process.

An important point that has been made is that the U.K.'s import regime should not be any way altered to India's disadvantage, at least for some important products like jute and coir, till a mutually acceptable solution with the enlarged Community are found. Indian request *inter alia* is in accordance with the standstill provision of GATT. It is also consistent with various commitments which thedeveloped countries have under taken in regard to the trade of the developing world in the international forums.

To prevent adverse effects on India's exports from the enlargement process, it is necessary that for some of the important and sensitive products from her the Community does not start applying the Community's External Tariff pending satisfactory solution to her commodity problems. The commercial cooperation agreement which India is seeking to establish with the Community should provide the broad framework for strengthening commercial relations between the two sides.

As a result of the decision of the Council of Ministers taken recently, the political will for entering into trade negotiations with India is now available. However, this is not enough because if this general political will cannot be translated into the early conclusion of a specific trade agreement covering India's sensitive products, the adverse effects on her exports cannot be avoided.

India's commercial relations with the Community cannot be discussed without some reference to its arrangements for Association and preferential agreements. Sometime it is asked whether the Community is not extending its sphere of influence through these arrangements? The African and other developing countries richly deserve the trade and other concessions in the Common Market. What has, however, disturbed some other developing countries is the discrimination that is sought to be created between the developing countries in the matter of trade concessions. This is so because in UNCTAD, GATT and other forums, India, among other developing countries, has advocated the principle of non-reciprocal and non-discriminatory preferences to be established in favour of the developing countries by the developed countries. The resolutions sponsored by some forty countries in UNCTAD III at Santiago urged that regional economic groupings must adopt a non-discriminatory policy towards all developing countries in the field of trade.

The Community has entered its definitive stage only at the beginning of this decade. Although it is responsible for commercial policies of the member-States, it has yet to forge the necessary tools to deal with the trade problems of the developing world. The Community is conscious of these handicaps. The President of the EEC commission has himself admitted the shortcomings of its institutions.

India would, however, like to remind the Community that one-third of the developing world lives in India. Their responsibilities to the developing countries would not be complete till positive and viable trade relations with India have been established. India would specifically expect from the Community an immediate solution to offset the adverse effects on account of the termination of the trading advantages in U.K; a solution to the problem of sensitive commodities like jute and coir which has remained pending for several years; a viable trade arrangement so that the chronic and growing deficits can be reversed; and a fair and equitable access to the world's largest and most prosperous economic union. This was stated by India's Foreign Trade Minister, Mr. L. N. Mishra in a recent address at the International Seminar on Economic Journalists that was organised in New Delhi.

FOREIGN IMPRESSIONS ON ENGINEERING INDUSTRY

Delegates from a number of countries who visited the Engineering Export Promotion Council's Pavilion at the Asia Trade Fair expressed the view that India is no more a developing country but a fully 'developed' nation.

The foreign buyers were much impressed and many were amazed at the progress and sophistication that the Indian engineering industry had achieved since independence. The delegations which visited the Fair were from U.S.S.R., Spain, Canada, Czechoslovakia, Hungary, Poland, Iran, Iraq, Ethiopia, Singapore, Sri Lanka, Germany, Tanzania, U.S.A., Fiji, Japan, U.K., Sudan and Mauritius.

Overseas orders of sizeable value had already been booked by the participants at the Fair for hand tools, hardware items, water and sanitary fittings and machine tools. Many enquiries had also been received for almost all the range of engineering products exhibited. An outstanding feature of the Engineering Council's participation in the Fair was that an integrated image of industrial growth of the country had been projected at one place for the first time, and this impressed the visiting delegations.

Foreign visitors had shown keen interest in Indian textile machinery, automobile components, pumps, air conditioning and refrigeration equipment and a number of other items.

SMALL SCALE SECTOR SECURES EXPORT ORDERS

Nearly a dozen foreign countries have approached the organisers of the Small Scale Industries Pavilion at Aisa 1972 Fair to buy products made in this sector. The value of such orders might come to about Rs. 20 million. The countries whose importers have shown interest in the small scale products include those from U.S.A., Iran, Australia, Belgium, Poland, Hungary, West Germany, Netherlands, United Kingdom and Poland.

Enquiries worth over Rs. 15 million for small scale goods have reached and advance stage of negotiation and other enquiries are being processed. Besides, from within the country itself the Pavilion authorities have received enquiries for products of this sector from over two thousand parties. The articles for which enquiries have been made include electrical goods and electronic components, sports goods, castings, bicycles, sanitaryware, diesel pumping sets, injection moulding machines, grinding machines, lathes, automobile parts and PVC shoe moulding machines.

Products ranging from machine tools to plastic footwear, which have come from over five hundred small units, are displayed in the Pavilion. Dentist's chairs, mopeds made by a small scale entrepreneur partly from components supplied by largescale sector, hand-tools, surgical instruments, table calculators, chemicals, paints and varnishes, leather goods, garments, processed foods, preserved fruits and vegetables are among the varieties of goods on show.

Visitors from other developing countries had shown eagerness not only to import goods made by this sector but to learn from the experience gathered by Indian small scale entrepreneurs.

One realises "how big a small industry in India is" only when one examines the wide range of products it manufactures—from a table lamp to a television receiver apart from sophisticated machinery and tools. Small scale industries today account for about 38 per cent of India's industrial production and 51 per cent of employment. Over the years, there has been a steady growth in the number of small-scale industries, resulting in an eight-fold increase within a decade. There are now 282,000 small units which provide employment to an estimated 4.2 million persons.

Through import substitution alone small industries have been able to save substantial foreign exchange yearly. In 1969-70, goods worth Rs. 320 million were exported by the small sector. The State Trading Corporation of India is estimated to have handled direct and indirect exports worth Rs. 730 million annually from this sector. For items like bicycles and their components, electrical appliances and other consumer durables, small-scale industries are responsible for about 80 per cent of the total exports.

The number of small units currently making ancillary supplies for large-scale units is estimated at 11,000 and their production is at about Rs. 330 million a year.

EXPORT OF SLATE PRODUCTS TO WEST GERMANY

An agreement for the export of slate products to West Germany was signed by the Haryana State Industrial Development Corporation Limited with Messrs Takogranit of Federal Republic of Germany recently.

According to the terms of Agreement, the Corporation will supply slate products to the German concern for a period of three years in the first instance.

INDO-TANZANIAN COMMERCIAL CO-OPERATION

India and Tanzania signed recently a Trade Agreement providing for Most-Favoured-Nation Treatment to each other. The agreement is to be in force for one year. The working of the agreement will be reviewed comprehensively at the end of six months from now. Provision has been made in the agreement for both the countries to take measures to facilitate the objective of achieving a steadily increasing and more balanced trade.

Trade between India and Tanzania has been growing in volume over the past few years. The trade turnover both ways has been of the order of about Rs. 200 million annually. In recent years, non-traditional products from India have also been exported to Tanzania.

An Agreement for Indian credit of Rs. 50 million to Tanzania was also signed recently. This is the first agreement of its kind with a country with which India has close relations.

The credit will be available for purchase of machinery from India to set up projects in the field of power, industrial estates, small-scale industries and such other fields as are mutually agreed to by the two Governments. It will also be available for the provision of expert services from India.

The loan bears interest at five per cent per annum and is repayable over a period of twelve years.

While speaking after the signing of the Trade Agreement, India's Foreign Trade Minister stated "It is our expectation that we would be able to give more concrete substance to programme of economic co-operation between India and Tanzania in pursuance of Lusaka Declaration on Non-alignment and Economic progress".

TRADE AGREEMENT WITH SPAIN

India and Spain have recently concluded a Trade and Economic Co-operation Agreement providing for most-favoured-nation treatment. The agreement has listed out 97 items for export from India to Spain and 77 items for import into India.

Both the countries have recognised the possibility of further economic co-operation for establishing joint ventures and for supply of engineering and other services, plants, machinery and equipment to each other and to third countries as also for joint execution of contracts, provision of services and establishment of joint ventures in third countries.

The agreement has specified certain areas where there should be possibilities of co-operation. These areas include fertilizers and fertilizer plants, petrochemical industries, crude oil refineries, electronics and electrical equipment, railway equipment, shipyards and ship-building industry, agricultural equipment and leather industry. The agreement is to remain in force for a period of two years initially.

The present level of economic and commercial co-operation between the two countries is not in consonance with the potentialities of the two countries for such co-operation. The trade flows between them are characterised by small volume and narrow range. The commercial exchanges between the two countries are only about $ 5 million. With the economic development taking place in both the countries, the scope for enlargement and diversification of bilateral trade and economic contacts is considerable.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

PROGRESS IN HEAVY ELECTRICALS

The State owned Heavy Electricals Factory at Bhopal registered 55 per cent increase in its output in the first six months of the current financial year (1972-73) over the corresponding output in the first six months of the previous year. The factory's finished output during the first half of 1972-73 (April-September, 1972) was of the value of Rs. 116.5 million as against Rs. 75.2 million in the same pariod of 1971-72.

The factory had so far supplied heavy electrical equipment worth over Rs. 1,800 million since its initiation of production in 1960. It manufactured almost the entire range of heavy electrical equipment required for generation, transmission and utilisation of power. Apart from conventional thermal and hydro generating plants, the factory also manufactured turbines for nuclear power stations. It was also supplying equipment to railways for their diesel and D.C. locomotives as also for suburban trains in Bombay and Calcutta regions.

The hydro-thermal sets built by the Bhopal Factory were already generating 264,000 kw of electric power in U.P., Himachal Pradesh, Punjab, Tamilnadu and Maharashtra. The first set of two marine turbines built at Bhopal for propelling Indian Navy's leander class frigates is now under erection at Mazagon Docks, Bombay.

India's first 2,36,000 KW nuclear turbine is now being built at the Bhopal Factory for Kalpakkam Atomic Power Project of Tamilnadu. The factory had also satisfactorily executed the fabrication of difficult steel components for the reactor at Rajasthan Atomic Power Project at Kota.

In the export arena, the Bhopal factory had already supplied its products to Ghana, Iraq, Kuwait, Malawi, Uganda, Australia, Malaysia, Singapore, Sri Lanka and Arab Republic of Egypt. It has also offered to undertake turnkey projects abroad for sub-station, water supply schemes and industrial complexes like cement plants and rolling mills.

SHIPPING TARGETS TO BE ACHIEVED

India is expected to achieve the Fourth Plan target fixed for shipping. The target is 4 million GRT of which 3.5 million GRT is to be operative and 0.5 million GRT on order.

In October this year, the operative shipping tonnage in India was nearly 2.58 million GRT with 1.50 million GRT firmly on order. Allowing for an estimated scrapping of 218,000 GRT, orders for about only 133,000 GRT are to be placed for achieving the Fourth Plan targets.

The purchase of two second-hand ships of a total of 26,000 GRT has already been approved. However, according to the present expectations only about 3 million GRT may be operative by the end of the Fourth Plan as against the Plan target of 3.5 million GRT in operation.

At the time of Independence in 1947, the country had only 59 ships of 0.19 million GRT. The tonnage at the beginning of the First Plan (1951-56) was 94 ships of 0.37 million GRT.

IMPORT SUBSTITUTION IN CEMENT INDUSTRY

Development of Alumina Cement by one of the Cement manufacturing establishments, M/s. Ishwar Industries Limited, Ishwarnagar 20, New Delhi, in the middle of Sixtees has not only helped the country to restrict imports of cement fondu–an imported variety but also enabled the country to earn valuable foreign exchange.

Alumina cement is a mono-calcium abuminate with hydraulic setting properties known as Refcem Cement. The process for the development of the cement was developed by the firm by employing melting process. It is a slow setting but rapid hardening cement. It has a wide application because of its quality of rapid hardness and is therefore being used primarily for making refractory materials. The refractory products made with this refcem cement become resistant to corrosion, high temperature, thermal sheets, volume change and abrasions. It also confirms to British specification BSS.

It is expected that it would save foreign exchange to the tune of Rs. 4 million annually. The developed refcem 15 Alumina cement has been awarded silver shield by the Government of India's Inventions Promotion Board and Ministry of Industrial Development for effectively substituting imports.

In 1970, castable refractories made from refcem 15 alumina cement was exported for the first time to Iran. Recently, nearly 250 tonnes of refcem 15 alumina cement was exported to Iran for use in the erection of Shiraz Refinery in that country against an export order placed by M/s. Snam Progetti of Milan (Italy), the internationally reputed firm for erection of refineries.

PROGRESS IN IRRIGATION

India's 39 million hectares of cultivated area is under irrigation. Of these, 19 million hectares are under major and medium irrigation while 20 million hectares are under minor projects. Including this, the irrigation facilities are now available to about 25 per cent of the cropped areas. More than 85 per cent of the irrigation potential created is being utilised.

The National Water Grid Construction is expected to transfer water from surplus areas to scarce areas to achieve the object of intensifying irrigation in the existing cropped areas. Along with this, it is further expected that some of the areas which are now drought-prone may also be brought under plough.

Most of the State Governments of the Indian Union have accorded top priority to agriculture with special emphasis on irrigation. A number of schemes have been implemented in this direction.

INTERNATIONAL SEMINAR ON TECHNOLOGY TRANSFER

An International seminar on Technology Transfer was recently held in India. While inaugurating the seminar, the President of India, Mr. V. V. Giri stated that the net rate of growth of industrialised countries is very much high and the increase in per capita earning in a develoved country in a couple of years might be more than the total per capita earning of a developing country. While the help and cooperation of industrially advanced countries to facilitate transfer of technology in specific areas to developing countries would be important, this should not bypass the needs, suitability and development of absorptive capacities in developing countries. They should strive for vertical transfer of technology wherein local research and development efforts play a significant role.

The terms of transfer of technology from the developed to the developing countries often impose undue strain on the balance of payments of the developing countries. There are also restrictions on exporting products from the produce of technology transferred to the developing world. Also there is considerable expatriation of profits from developing countries. Technology invented in developed countries is essentially big capital intensive and low labour employing and its import as such might not be suited to the requirements of developing countries. Again, transfer of technology overlooks the size of technology required, the nature and kind of resources available and the prevailing socio-economic conditions of the developing countries. Viewed against this background, the developing countries should find alternatives, Mr. Giri added.

The most desirable objective before the developing countries would be to achieve self-reliance in strategic and basic economic areas compatible with local resources, skill and capabilities so as to operate with some effectiveness at national and international level. The flow of technology from industrially advanced countries to less developed must also be restricted drastically to the needs of strategic areas and to efficient use of agriculture based resources.

Referring to the cooperation among developing countries in the field of transfer of technology, the President stated that since the conditions prevailing in most of the developing countries in a region are more or less similar, these countrics should explore common grounds for cooperation. "Time has come when an era of cooperation among developing countries based on complimentarity and give and take policy should use technical progress and universal well-being."

India has considerable experience in importing technology in its industrialisation programme. During the past twentyfive years, Indian firms entered into about 4000 collaboration agreements with foreign firms and agencies with or without financial participation. "A critical review of what had been achieved by these collaboration agreements and attendant costs and benefits had taught India that without a viable indigenous research and development capacity of its own, a developing countries is ill-fitted to know what technology exists elsewhere or to evaluate and to make a selection for import much less to absorb and adopt" stated India's Minister for Industrial Development while speaking at the Seminar. Another lesson learnt was that the bargaining power of a country in international technological market seemed to be directly related to the extent and efficiency of its own indigenous capability in science and technology. Stating that international agencies like the United Nations Industrial Development Organisation (UNIDO) play an important catalytic role in arranging transfers of technology on mutually acceptable terms between more developed and less developed nations, the Minister referred to areas in which there could be pooling of resources. Specific mention was made by him of the technology for countering pollution.

The Seminar recommended among others that each nation should formulate its technology plans for national development and its import of technology should be in areas considered most urgent. It was also recommended that the developing countries should establish institutions to deal with the complex aspects of technology transfer. It was stressed that there was a need to develop strong project engineering and design capability which should enable the establishment of technologies in the developing nations. The foreign exchange cost to the developing countries by way of advance payment would amount as much as six per cent of the net value added to the manufacturing output which is more than the direct foreign investment flowing into the developing countries. This cost is increasing by twenty per cent a year. The indirect costs are even much higher. It was therefore felt that urgent measures be taken for reducing the foreign exchange cost to the developing countries in the import of technology.

The UNIDO will cooperate with the Government of India in a programme to develop the industrial technological capacity in India. The programme of cooperation envisages making available Indian industrial and technical experience to other developing countries on agreed terms.

Recently, four countries have approached India's Council for Scientific and Industrial Research (CSIR), for scientific and technological cooperation. Two countries have approached for joint research programme in areas of mutual interest while two others are interested in specific problems of technology transfer which is to be initiated soon.

BEACH RESORT AT KOVALAM

The Kovalam beach in Kerala State, the first of its kind to be developed into a major tourist resort has been recently inaugurated.

The Kovalam Grove, a complex of 40 beach cottages known locally as Kudils is already complete. The kudils are arranged in an irregular oval around a swimming pool. Each kudil is air conditioned and consists of a studio bedroom for two, sun terrace, bath, channeled music and kitchenette. The kitchenette is equipped with refrigerator, electric kettle and storage space. Gaily furnished, the decor makes extensive use of typical Kerala coir matting and wicker work. From the terrace one looks through coconut palms to the sea. Blending with the palms are attached bear and snack bar, and an open pavilion around the swimming pool.

A 100-room luxury hotel run by the Indian Tourism Development Corporation will also form a part of Kovalam beach complex by end of 1973. To be known as the new Kovalam Palace Hotel, the new hotel will have 72 double rooms in the main building and 28 cottages. The hotel is moulded like falling water to the contours of a rocky hillside overlooking the beach. The visitor will alight from his car to walk on to the roof of the hotel. Then downwards by elevator to a series of terraced rooms, each with a private sundeck looking out to the sea. The centrally air-conditioned hotel will have two restaurants, one of which will be a barbecue. There will be a coffee shop and a bar. For those who want a change from the sea, there will be a roof-top swimming pool.

In addition to the palace Hotel, the existing hotel will also continue and will house a conference centre and luxury suites.

The other features of the Kovalam Beach Complex include Beach Centre for aquatic sports, a theatre for the kathakali dance, dramas, and a 'Yoga Centre'. The Yoga Centre provides for a scheme for teaching and practicing of yoga. The traditional oil baths and massage according to the ancient Ayurvedic system will be available at this centre.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

SOLAR WATER HEATER DEVELOPED

Large size solar water heater, suitable for large intermittent demands of hot water by hospitals, hotels and kitchens has been designed and fabricated by the Central Building Research Institute (CBRI), Roorkee, U.P.

The domestic solar water heater can heat 140 lires of water upto 55°C in the afternoon and 48°C or 50°C in the early morning during winter. The large size water heater can heat 600 litres of water upto 55°C in the afternoon and gives water at 48°C to 50°C in the early mornings during winter.

The heater consists of collectors of sun rays and a heat insulated tank. The absorber consists of a blackened aluminium sheet blackended on the exposed side and attached to a set of a galvanized pipes such that there is a good thermal contact between the tubes and the plate. It is housed in a black cover of heat insulating material and having a glass window on the exposed upper side. This allows sun rays to fall on the blackened plate. The absorber is oriented towards the south at an angle (equal to latitude angle + 15°) for winter use.

The absorbers are connected in parallel and are then connected to the storage tank which is kept at some convenient location. The circulation is made by a small pump (1/6 H.P.). The pump operation is controlled by a tiny gadget developed at the Institute. On cloudy days or when the load is more than the design value, an immersion heater will be automatically switched on.

The unit can easily be manufactured from local materials and the only skill required is that of a plumber and a sheet metal worker. Earlier a domestic solar water heater of the capacity of 140 litres was developed at the Institute and had been licensed to two parties.

X-RAY GRADE BARIUM SULPHATE

A process for the production of X-ray grade barium sulphate, used in medicine as an opaque contrast medium in X-ray therapy and as an anti-diarrheal and demulcent powder has been recently developed by the Regional Research Laboratory (RRL), Hyderabad.

In the process, Barium chloride is reacted with sulphuric acid to obtain precipitate of barium sulphate. The precipitate is washed, filtered, dried and ground to the required particle size. The work has been carried out in the laboratory on a 40 Kg. batch scale. The product obtained, conformed to B.P. and was found acceptable by consumers.

Raw materials required in the process are Barium chloride and sulphuric acid. All the raw materials are available indigenously.

Plant and Machinery required in the process are Acid feed tank, reaction vessel, basket centrifuge, tray dryer, ball mill and vibrating screen. All these equipment are indigenously available.

DISPERSE DYES

A process for the manufacure of disperse dyes has been recently developed by the National Chemical Laboratory (NCL), Poona. The developed disperse dyes are suitable for polyesters showing good affinity and sublimation fastness.

For polyesters, the disperse dyes are usually small molecules which can penetrate the fibre rapidly. If a dyed polyester fibre is exposed to high temperatures such as those encountered in the setting of plates or in processing, the dye has a tendency to sublime from the fibre. The sublimed dye may be absorbed by adjacent fibre leading to staining. Sublimation fastness can be improved by the introduction of polar groups.

The main object behind the development of the process is to produce disperse dyes for polyesters with improved sublimation fastness without much reduction in affinity. The invention consists in introducing suitable modifications in chromophoric systems like monoazo, diazo, anthraquinone and nitrodiphenylamine and free of solubilising groups by using general methods like diazotiasation, coupling sulphochlorination and condensation and also by modifications in general methods used for its introduction.

BROAD SPECTRUM WEEDICIDE

The Defence Research Laboratory (Materials), Kanpur, has developed a suitable, non-selective, economical and easily available weedicide which can be sprayed by a power sprayer. All the raw materials are available indigenously.

Weeds are hard annules and constitute a common source of fire hazard on drying. Weeds hamper land development and in air-fields they hinder proper use of runways and provide hide outs and shelters to hostile elements. Eradication of weeds has become necessary for safety and security in Defence installations.

Army and Air force will be the main consumers of the weed-killer and anticipated demand of the product may be about 100,000 litres annually.

LITHIUM CARBONATE AND FLUORIDE

A process to produce lithium carbonate and lithium fluoride form lepidolite or lithium mica for the manufacture of special greases for aviation and industrial uses, has been developed by the Central Glass and Ceramic Research Institute (CGCRI), Calcutta.

Lithium carbonate is the starting material for other lithium chemicals. Lithium flouride, another important lithium chemical, is obtained as a by-product of this process.

The process comprises of (i) sintering of lepidolite mixed with other reactive substances, (ii) leaching of the lithium salts from gangue, (iii) separation of most of the lithium in the form of lithium carbonate and (iv) recovery of residual lithium in the form of lithium fluoride.

Raw materials required in the process are lepidolite, the major raw material and the other materials. All these are available indigenously. According to the mine owners of Rajasthan and Bihar, there are large deposits of lepidolite for which there is no market. According to the Atomic Energy Department, the available reserves down to only shallow depths would be of the order of 10,000 tonnes, but it would be very much exceeded if there is demand for it. No precise assessment of the reserve of lepidolite has, however, been made.

Equipment required for production comprise jaw crusher, hammer mill, pulveriser, batch mixer, pelletising machine, filter press, evaporator, centrifuge, blunger, sintering furnace, drying chamber etc. These major items of plant and equipment can be fabricated indigenously.

Lithium chemicals are extensively used in the country and the entire requirement is at present being met by import. The major use of lithium chemicals is at present in the form of lithium hydroxide monohydrate for the manufacture of special greases for aviation and industrial uses and the demand is estimated at about 100 tonnes per annum. Another important lithium chemical is lithium chloride for making welding electrodes and is imported to the extent of about 10 tonnes per annum. Substantial amounts of lithium carbonate and fluoride are also imported for use in ceramics, glasses, glazes and enamels.

EXPORT VALUE OF SELECTED ENGINEERING PRODUCTS

(Rs. million)

Item	1971-72
Auto & Auto parts	151.40
Electric Wires & Cables	112.55
Bicycles & Parts	80.45
M. S. Pipes & Tubes	74.10
Railway coaches & wagons	65.65
Hand Tools & Small Tools	61.00
Jute, Textile & Knitting Machinery	59.60
Electric motors transformers etc.	50.70
C. I. Products including steel castings	43.20
Transmission line towers and poles	37.60
Diesel engines and parts	33.00
Machine tools	30.45
Wire and wire products	26.45
Batteries - Dry & Storage	25.85
Steel Structurals Fabricated including P. S. Tanks	24.50
Office Machinery	22.30
Radios and components	22.30
Electric fans and parts	15.65
Railway track materials	13.50
Builders' Hardware incl. Locks	13.50
Brass, coppersheets, circles, rods & tubes	13.50
E. P. N. S. Ware	12.35
Electrical Accessories & appliances	11.60
Sugar Mill machinery	11.10
Asbestos Cement Plant & Mill Machinery including concrete vibrators	9.50
Scientific & Surgical Instruments	9.30
Air Conditioners, Refrigerators, Water Coolers etc.	8.50
Bright steel bars and shaftings	8.50
Oil Lamps & Stoves (Pressure & Non-Pressure)	8.45
Boilers & fittings	8.15
Water & Sanitary Fittings	7.45
Mechanical Pumps	7.40
Steel Furniture	7.20
Aluminium Utensils & Capsules	6.55
Bolts, nuts, rivets & washers	6.45
Fire Arms of Sports	5.60
Sewing machines and parts	5.50
Aluminium sheets, circles & foils	5.35
Agriculture machinery and implements	4.80
Air Compressors	4.50
* Total including other items	**1260.45**

** Excluding exports to Bangladesh and supplies to U. N. Projects in India. The export trade in engineering items amounted to Rs. 1165.90 million in 1970-71.*

Based on the estimates of Engineering Export Promotion Council, Calcutta.

CONTOURS OF PROGRESS IN ENGINEERING INDUSTRY

The organised sector of India's engineering industry annually manufactures nearly $ 3 billion worth of products virtually ranging from pins to locomotives and ball bearings to billet mills. Over two thousand organised enterprises, both in the public and private sectors cater to most of the requirements of the country's infrastructure and industrial development. The engineering industry, besides meeting the indigenous requirements has an export capability of nearly $ 180 million worth of products every year, of which one third is accounted for goods of developmental nature.

In the road transport equipment sector, India produces about $ 200 million worth of commercial motor vehicles annually, upto a payload of 15 tons and with an import content of less than 10 per cent. The product range includes trucks and buses, jeeps, station wagons, ambulance vans, tractor trailors and special purpose vehicles like crash tenders. Foreign exchange value of nearly $ 30 million is annually secured from the export of commercial motor vehicles and vehicular ancillaries. Among the importing countries of Indian vehicles are Sri Lanka, Indonesia. Iran, Nigeria, Qatar, Arab Republic of Egypt and Yugoslavia. Automobile ancillaries are supplied among others to the United Kingdom and the Federal Republic of Germany. Negotiations are under progress for joint ventures between India's automobile and ancillary manufactures and entrepreneurs in some Asian countries for assembly-cum-manufacture of trucks and buses and for the production of a wide range of automobile components.

The railway network in India is one of the largest in the world and the economy has made strides in the production of rolling stock, railway track material, signalling equipment, train lighting equipment and equipment for workshops and marshalling yards. The country's rolling stock industry is capable of manufacturing 150 diesel and electric locomotives, 40,000 wagons and 1000 passenger coaches including electric multiple units and coaches of integral construction every year. The full domestic requirements of rails, sleepers, dogspikes and screwspikes, tie rods, bearing plates, and other material required for permanent railways are fully met from indigenous production. The country currently exports $ 12 million worth of wagons, coaches and railway track fasteners and fittings annually. Indian railways have secured and executed several export contracts by open global competition, for wagons and coaches, from the National Railways of South Korea, Thailand, Burma, Sri Lanka, Arab Republic of Egypt, Sudan, Hungary, and Iraq. On hand, the industry has massive orders for supply of wagons to Yugoslavia and Poland. It is supported by a well developed design capability that can cater to specifications including European and American standards as also the needs of specialised freight traffic.

The public sector in India is capable of manufacturing 5,000 MW annually both for thermal and hydel electric power generating sets. The thermal generating sets are standardised at 30 MW, 60 MW, 110/120 MW and 200 MW ratings while hydel generating sets are manufactured in a capacity which ranges from 30 to 60 MW. There are plans to expand the capacity range of thermal generating sets to 300 MW and 500 MW, and that of hydel generating sets to 150 MW. Power and distribution transformers are manufactured to a total of 10 million KVA every year, for a range including ratings up to 175 MVA and 220 KV on the high tension side. Electric motors ranging from fractional horse power to 500 HP are produced in the private sector while the public sector can produce motors to a size of 10,000 HP. The present production of electric motors per year totals about 3 million H.P. High tension circuit breakers of both minimum oil and air blast types for voltages of 220 KV are under manufacture while air blast circuit breakers of 400 KV can also be manufactured. Most of the low tension switchgear varieties required for the domestic power distribution system are also being produced, leaving a sizeable surplus for export.

Presently, India's exports of electric motors and transformers and switchgears and control gears to over 30 countries of the world is valued at about $ 8 miliion. The export capability includes delivery on a turnkey basis of complete electric sub-stations. The export capability in power equipment also includes designing engineering, fabrication, testing and erection of complete high tension and extra high tension power transmission lines up to 400 KV under difficult terrain and climatic conditions. The Indian industry has already proved its capability in constructing long power transmission lines in countries like Nigeria, Sudan, Kuwait,

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Burma, and Thailand. To public utilities in the U.S.A., India has already supplied sizeable tonnages of transmission line towers. The full range of power distribution equipment including small electric motors, house wiring cables, electric wiring accessories, lighting fittings, electricity meters, fans and lamps can also be supplied to exacting specifications.

India has also a sizeable export capacity for fabricated steel structures, E.O.T. cranes. wharf cranes, mobile cranes, dredgers, power shovels and excavators, crawler tractors, dumpers and other construction equipment. Complete water supply installations such as central pumping plants, water treatment plants, piping and control valves and fittings are also in the wide complex of specialisation in India. Already many lines of such equipment have been supplied to Afro-Asian countries including Philippines, East-Africa and Malaysia.

Another interesting achievement of the Indian economy in recent years is its ability to undertake to order the jobs of designing, fabrication and erection of industrial machinery. In the sugar mill sector, for instance, India has offered to produce 22 complete mills, mostly for processing sugarcane upto a crushing capacity of 4000 tonnes per day. One of the largest producers in the line in the whole world, the country has on hand the job of constructing a sugar mill in Uganda. Final negotiations are in progress be erecting sugar mills in Malaysia too. India can also supply plants for converting bye-products like bagasse into paper and molasses into rum. Complete paper and pulp plants of 50, 100 and 150 tonnages per day can be fabricated and erected. The economy has also acquired capacity for fabrication and erection of complete cement plants of upto 1200 tonnes per day capacity either for dry or wet processes. Already a cement clinker grinding and packing plant, supplied and erected by an Indian enterprise is in operation in Kuwait while a larger Indian cement plant with Indian assistance is under construction in Iraq. Complete spinning, weaving and finishing mills for cotton textiles are also produced and exported by the country. In the Arab Republic of Egypt and Ethiopia such complete mills supplied by a consortium of Indian enterprises are on stream.

Machine tools constitute yet another area of proven Indian ability. The country's production is of the order of $ 80 million every year of which $ 5 million worth is on export stream to countries far and near including the U.S.A., U.K., Canada, Australia, and those in West Europe. The range of production covers all general purpose machine tools, like centre lathes, capstans and turrets; single spindle and multi-spindle automats, planers, shapers, pillar and radial drills, milling machines, power presses and grinders. Progress is also achieved in the production of special purpose machine tools and metal working equipment such as merchant steel rolling mills, foundry and forge equipment and electric furnaces. The progress in the machine tool sector is well matched with a wide range of small and cutting tools of high-speed steel, carbide and diamond. As a result, India is now in a position to design, fabricate and deliver for export. complete medium size workshops for the manufacture of a variety of consumer durables and construction hardware. Several joint ventures in countries like Thailand, Indonesia, Malaysia, Philippines, Sri Lanka, Nepal, Iran, Iraq, Kenya, Zambia and Sudan are coming up for the manufacture of a wide spectrum of consumer and construction durables including electric fans, sewing machines, bicycle and bicycle components, water metres, steel furniture, steel tubes razor blades, electric lighting fittings and wiring accessories and builders hardware. ☐

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RAYON AND SYNTHETIC FIBRES ON EXPORT STREAM

Synthetic fibre fabrics have come to figure prominently in India's export trade. In 1971-72, the exports amounted to Rs. 28.00 million as against Rs. 19.56 million in the previous year.

In 1971-72, the polyester fabrics group constituted the foremost area of export earning, having fetched Rs. 7.14 million as against Rs. 2.19 million in 1970-71. Sudan was the leading importer with an intake value of Rs. 3.11 million (Rs. 0.94 million in 1970-71), followed by Nigeria at Rs. 1.35 million, Singapore at Rs 1.16 million, Zambia at Rs. 0.83 million, Fiji at Rs. 0.13 million and Indonesia at Rs. 0.12 million.

Polyester suiting was the next important category which earned Rs. 7.17 million as against Rs. 7.96 million in 1970-71. For this category too, Sudan topped the list of importing countries having absorbed as much as Rs. 4.47 million (Rs. 4.37 million in 1970-71).

With Fiji Islands occupying the leading position, importing worth Rs. 0.88 million, the category of Nylon Georgette netted foreign exchange at a value of Rs. 3.43 million in 1971-72. In the previous year (1970-71) the export value was Rs. 2.18 million. Singapore imported worth Rs. 0.62 million, South Yemen Republic Rs. 0.37 million, U.K., Rs. 0.37 million, Sri Lanka Rs. 0.20 million and Dubai Rs. 0.19 million.

Besides these major categories, the export value of other items was : Polymyde Fabrics Rs. 1.72 million; Nylon sarees Rs. 1.57 million; Nylon satin Rs. 1.31 million and Nylon Brasso Rs. 1.20 million. In addition to these varieties, fabrics of other synthetic fibres, polyester shirting, terylene dacron sarees, nylon tafetta and twinkle nylon, were the other items exported.

Contributing to the export effort in the line M/s. Nirlon Synthetic Fibres and Chemicals Limited, 115, Mahatma Gandhi Road, Bombay, recently concluded sizeable export deals with Centrotex, the official importing body of Czechoslovakia for the supply of rayon and synthetic textiles valued at Rs. 1.2 million.

Besides this contract, export orders valued at Rs. 6 million have been secured by the Bombay firm earlier. The firm also exported to certain other countries, including the United States and Canada.

India's total production of man-made fibres is of the order of 120,000 to 125,000 tonnes per annum. The country's total requirement of rayon and synthetic fibres by the end of the Fifth Five Year Plan is expected to be around 175,000 and 105,000 tonnes respectively.

MACHINE TOOLS TO FEDERAL REPUBLIC OF GERMANY

India's installed capacity of machine tools is estimated currently to produce worth about Rs. 700 million per year. Comparatively a new comer in the field, the industry has succeeded in exporting about Rs. 32 million worth of the tools per annum. In 1971, there were 74 manufacturing units in the organised sector whose production was of a value of Rs. 450 million.

The major items of machine tool exports included lathes, boring, broaching, drilling and threading machines; milling, planing, shaping, gear cutting and slotting machines; grinding, lapping, honing, polishing, sewing and filing machines; metal framing machines, hydraulic presses, rotary shearers, punching, shearing, forging and rivet machines. A large number of world consumers have come to rely on imports of these tools from India. The importers include Federal Republic of Germany, Netherlands, Australia, U.S.A., Canada, U.K. and New Zealand.

M/s. Gujarat Export Corporation Ltd., Udyog Bhavan, Rancchodlal Marg, Ahmedabad-9, have recently succeeded in bagging an export order for Rs. 1.5 million for the supply of machine tools to West Germany. The buying party from that country visited the Gujarat Pavilion at the 'ASIA 72' where the wares of the Gujarat Corporation were exhibited. The export order includes the supply of radial drilling machines, lathes and hacksaw machines manufactured in Jamnagar. This export order indeed marks one more link in the chain of successful export efforts by India's exporting community.

INDIAN COFFEE TO POLAND

Exports of coffee from India amounted to Rs. 220.72 million in 1971-72. Among the categories of coffee exported during the year, Arabica cherry variety netted the largest value of the order of Rs. 82.67 million. Among the importing countries, the intake by USSR was the largest of all at Rs. 24.65 million (4478 tonnes), followed by USA at Rs. 20.12 million (3704 tonnes), Yugoslavia at Rs. 9.95 million (1614 tonnes), France at Rs. 6.30 million (1088 tonnes), Netherlands at Rs. 4.25 million (746) tonnes), Australia at Rs. 4.14 million (727 tonnes), Bulgaria at Rs. 2.60

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million (407 tonnes), Norway at Rs. 2.50 million (400 tonnes), U.K. at Rs. 2.43 million (455 tonnes) and German Democratic Republic Rs. 2.04 million (361) tonness.

Arabica Plantation (A Grade) was the next important category which fetched Rs. 74.21 million. USSR again with an intake worth Rs. 30.22 million (4539 tonnes) was the leading buyer for this variety. The export value of the other prominent importing countries was : Yugoslavia Rs. 13.61 million (2000 tonnes); U.S.A. Rs. 7.69 million (1246 tonnes); Czechoslovakia Rs. 4.91 million (755 tonnes); Rumania Rs. 4.81 million (743 tonnes); Bulgaria Rs. 3.00 million (452 tonnes); France Rs. 2.02 million (300 tonnes); German Democratic Republic Rs. 1.63 million (240 tonnes); Kuwait Rs. 1.34 million (198 tonnes) and Federal Republic of Germany Rs. 1.42 million (227 tonnes). With the USSR again occupying the position of number one importing country at Rs. 6.61 million (1230 tonnes), the variety of Robusta cherry earned foreign exchange at a value of Rs. 27.17 million. Next to USSR, USA was the second best destination and its share was valued at Rs. 6.14 million (1101 tonnes). The import value of other markets was: Italy Rs. 3.90 million (743 tonnes); U.K. Rs. 2.41 million (460 tonnes); Bulgaria Rs. 1.88 million (341 tonnes); France Rs. 1.78 million (326 tonnes) and Canada Rs. 1.72 million (310 tonnes).

Besides these major varieties, the foreign exchange earning of other categories was : Arabica plantation (B Grade) Rs. 8 42 million (1266 tonnes); other grades of Arabica Plantation Rs. 14.42 million (2443 tonnes) and Robusta Parchment Rs. 4.37 million (750 tonnes). Besides, coffee extracts, essence concentrates etc. of coffee earned Rs. 9.46 million (267 tonnes).

Recently, India's Coffee Board at Bangalore and the State Trading Corporation concluded a contract with the National Foreign Trade Enterprise, Warsaw, Poland for the supply of 1000 tonnes of Robusta Cherry (A B grade) valued at Rs. 5.00 million. This is the first direct coffee deal concluded by the Coffee Board and STC with Poland.

India's Southern States are traditional coffee growing areas. Mysore State possesses 60 per cent of the total area under coffee cultivation, followed by Kerala having 21 per cent, Tamil Nadu 18 per cent, the remaining one per cent being shared by the other States of Andhra, Maharashtra, Orissa, Assam, West Bengal, besides Andaman and Nicobar islands.

In 1970-71, the production of coffee has surpassed all the previous records of production having produced 109,775 tonnes. The break-up of the production was : Arabica variety 58,140 tonnes and Robusta variety 51,635 tonnes. The production during the last four years was; 71,473 tonnes in 1966-67; 57,331 tonnes in 1967-68; 73,500 tonnes in 1968-69; and 63,600 tonnes in 1969-70.

There are about 50,125 coffee estates in the country comprising 48,502 small holdings of 10 hectares and below and 1623 above 10 hectares. Of these, Mysore has 16,607 small holdings and 1136 large holdings, Kerala has 20,257 small and 260 large holdings while Tamil Nadu has 9,692 small and 260 large holdings.

India is a signatory to the International Coffee Agreement (1968). Under this agreement, export of of coffee is on a quota basis every year. India's annual export quota for 1970-71 (October 1970-September 1971) was fixed at 24,395 tonnes. For the coffee year 1971-72, the quota has been fixed at 21,060 tonnes.

LEATHER EXPORT TO NORTH KOREA

India's exports of leather and manufactures during 1971-72 amounted to Rs. 907.65 million as against Rs. 721.82 million in the preceding year. Of the exports, the outgo of leather alone amounted to Rs. 901.42 million against Rs. 715.88 million.

In the wide variety of leathers prominent in the export trade, calf leather earned Rs. 68.44 million. It was mainly supplied to U.K. market. Italy was another important buyer. Leather of other bovine cattle including bark tanned and chrome tanned unfinished hides, buffalo hides including katai chrome or vegetable tanned varieties, chrome uppers, suedes etc. fetched Rs. 901.95 million. Among other leathers exported, the more important categories are chrome tanned or vegetable tanned, sheep and lamb skins, unfinished goat and kid skins, glazed kid, reptile skins etc.

Among the leather manufactures that are active in the export stream are leather pickers, picking bands and beltings for textile and other industrial machinery, saddlery and other harnessmakers' goods, soles uppers, straps etc.

Adding to the export effort of the leather industry, M/s. State Trading Corporation of India (STC) have recently concluded an export contract for the supply of 9 million square feet of finished leather to North Korea valued at Rs. 32.4 million. This is considered to be a major breakthrough for India's export in the Korean market. It is the biggest order so far secured by the STC for Indian finished leather. The North Korean delegation which visited the country in October this year, visited various leather manufacturing centres in the country before placing the export order.

COAL AND COKE TO BANGLADESH

India's export of coal and coke in 1971-72 amounted to Rs. 10.68 million. In fact, the export during the preceding year was Rs. 40.00 million.

During 1971-72, coal of various types earned as much as Rs. 9.85 million. Of this, Bituminous coal (high volatile), the major category of export, earned as much as Rs. 8.9 million. Burma was the leading buyer for this variety with a total intake of the order of Rs. 7.60 million, sharing about 78 per cent of the total export value. The import value of other two destinations viz : Sri Lanka and Nepal was of the order of Rs. 0.64 million and Rs. 0.63 million, respectively. In addition to this, the anthrasite variety earned Rs. 0.51 million.

Among other varieties, the export earning of hard coke was Rs. 0.74 million, lignite briquettes and lignite Rs. 33,555 and others Rs. 51,560. The prominent destinations for these varieties were Burma, Nepal, Netherlands, USA and Tanzania Republic.

India's Minerals and Metals Trading Corporation (MMTC) have recently secured a long term export contract from Bangladesh for the supply of coal and coke to the tune of Rs. 30 million.

EXPORT PERFORMANCE AND POTENTIAL

ENGINEERING EXPORTS TO EAST EUROPE

While the export trade in agro-mineral based traditional products is being strengthened by the Indian industry by resorting to product adaptation and exploration of new end—uses, a variety of non-traditional semi-manufactured and manufactured products have come to play a vital role in the country's export growth in recent years. Among the non-traditional, products, the engineering industry's contribution is indeed noteworthy. The East European markets have come to absorb a good chunk of the engineering products from India. In the course of the last decade, the export value in engineering goods to this region rose from a little over Rs. 1.3 million (1961-62) to Rs. 130 million in 1971; in fact, an export target of Rs. 660 million has been fixed for the exports to the region by the end of the Fifth Five Year Plan (1979-80).

Most of the East European countries have shown consistent increase in the absorption rate of engineering products from India. The intake of Yugoslavia followed by U.S.S.R., Czechoslovakia and German Democratic Republic has been particularly notable. Exports to Poland and Hungary also have substantially increased, mainly due to railway wagon export deals.

A review of India's engineering product exports to East Europe reveals that starting with a handful of items, those markets now look to India as a competent supplier of a very wide range of products. The major products imported by the region include dry and storage batteries, automobile components, malleable fittings, wire ropes, sanitary fittings, knitting machines, aluminium conductors and hardware items. Except for dry and storage batteries, most of the products in the line are indigenously available and are also labour intensive. The annual trade plans with East European countries have indeed played a role in boosting the export of engineering goods.

Another facet of engineering product exports to the East European countries is in respect of conversion deals. The Soviet Union have evinced interest in recent times in obtaining from India such simple manufactures as wood screws, bolts and nuts, for which raw materials can be supplied by them (USSR). It is felt that such conversion deals with not only the Soviet Union but even with other East European countries can be possible in specific areas including fasteners like bolts and nuts, rivets and wood screws; wire nails, barbed wire and other wire products; forged items including forged handtools; small and cutting tools including diamond tools and bits; wire ropes; automobile components like leaf springs and forged auto components and structural fabrication like transmission line towers and railway track materials.

Besides the steel-based items, the possibilities of conversion deals are evident in respect of items basically manufactured from non-ferrous metals such as copper, lead and zinc. In fact, the Indian manufacturers received enquiries for items such as copper, cables, storage batteries, both for automobiles as well as for tractors.

Yet another area of commercial collaboration potential between India and East European countries refers to the aspect of third country collaboration. The East European countries are setting up plants in developing countries of Asia and Africa. The organisations in East European countries can indeed make use of the capacity and technical competence available in India for supplying ancillary equipment such as structural fabrication, cranes, electric motors and transformers that may be required in the turnkey projects which the East European countries might undertake in third countries.

In the year 1971-72, the Soviet Union's major purchase in engineering group included insulated cables and wires (Rs. 17.93 million), storage batteries (Rs. 8.15 million), bar aluminium conductors (Rs. 7.18 million), surgical and medical instruments Rs. 5.08 million, pliers and spanners (Rs. 3.44 million) and wire ropes (Rs. 1.93 million). Czechoslovakia imported Rs. 2.96 million worth of diamond tools and bits, pliers and spanners at Rs. 2.33 million and sanitary and water fittings for Rs. 1.88 million; the Czech market also purchased some quantities of gramo phone records and locks and padlocks. Knitting machines constituted the major item of GDR's purchases in the year at Rs. 4.54 million. Locks and padlocks was the next best item of their import at Rs. 2 million. GDR's imports of insulated cables and wires were valued at Rs. 1.16 million while ba aluminium conductors were purchased for Rs. 1.08 million and storage batteries for about Rs. 1 million. Railway wagons (Rs. 1.42 million), auto parts (Rs. 1.32 million), pliers and spanners (Rs. 0.23 million) were the important items bought by Poland. As for Rumania, auto parts, twisting drills and diamond tools and bits prominently figure in their engineering imports from India. Wire ropes at Rs. 3.56 million, malleable iron castings at Rs. 1.83 million were the significant products of import by Bulgaria. The best part of Hungary's imports in 1971-72 related to railway wagons (Rs. 13.54 million). The other products in the Hungary's import list were malleable iron castings at Rs. 1.83 million and diamond tools and bits at Rs. 0.6 million.

It was Yugoslavia which purchased the widest variety of engineering products from India in 1971-72. Their imports included auto chassis with engines (Rs. 4.93 million), auto parts (Rs. 2.82 million), bicycle parts (Rs. 2.8 million), torque converters and investors (Rs. 2.28 million), auto buses and lorries (Rs. 1.43 million), auto engines and parts (Rs. 1.42 million), bar aluminium conductors (Rs. 1.37 million), tractors and parts (Rs. 0.98 million), pliers and spanners (Rs. 0.92 million), sewing machine parts (Rs. 0.62 million), wire ropes (Rs. 0.55 million), bolts and nuts (Rs. 0.52 million), machine tools (Rs. 0.52 million), forgings (Rs. 0.92 million), locks and padlocks (Rs. 0.4 million), auto chassis (Rs. 0.27 million), gramophone records (Rs. 0.4 million), electric measuring and controlling equipment (Rs. 0.29 million), storage batteries (Rs. 0.33 million) and wood screws (Rs. 0.11 million).

EXPORT PERFORMANCE OF MICA

During the period April-October 1972, the export value of mica was Rs. 81.8 million (14,300 tonnes). U.S.S.R.'s intake value was at a level of Rs. 44.3 million while that of U.S.A. was Rs. 6.9 million, Poland Rs. 6.10 million, Japan Rs. 6.05 million, German Democratic Republic Rs. 3.9 million, Hungary Rs. 2.25 million and Switzerland Rs. 2.16 million.

In the year 1971-72, mica exports were valued at Rs. 175.8 million (22,880 tonnes). The largest exports of the mineral took place in 1965-66 valued at Rs. 190.80

million. Since then the exports declined and have been static around Rs. 170 million. The exports have not increased despite the increased world demand due to expansion in the production of electrical and electronic goods and new end-uses for mica and its products. Technological developments in the industrialised countries resulted in the use of non-mica substitutes for low voltage in household gadgets. These are mainly ceramics, glass, porcelain, rubber, polystyrene and polyethylene. Glass bonded and phosphate bonded mica has come to be substituted for sheet mica. Vacuum tubes are being replaced by integrated circuits of television. Mica has been released from U.S. stockpile at 15 to 25 per cent lower prices than Indian prices All these reasons contributed to reduce the export supply.

With a view to improving the export outflow, price control regulations were introduced by the Government of India in 1964 so as to avoid unhealthy competition amongst domestic mica exporters. Compulsory preshipment inspection was simultaneously introduced to ensure that the supplies conformed to qualities and grades of mica purchased by the overseas buyers. The export competitiveness is also met by reducing the export duty on fabricated mica and removing the duty on mica powder.

Export of processed mica has been canalised through the Minerals and Metals Trading Corporation, effective from January 1972. The measure proved helpful as its export during April-October 1972 rose to Rs. 114.10 million as against Rs. 94 million in the corresponding period of the last year.

The Minerals and Metals Trading Corporation has concluded a three-year agreement with the German Democratic Republic for mica supply. Under the agreement mica blocks of the order of 39 million tonnes in 1973, 38 million tonnes in 1974 and 1975 would be supplied. The supply of mica splittings in the three years is expected to be 244 million tonnes, 272 million tonnes and 290 million tonnes. 800 million tonnes worth of mica scrap is to be exported to GDR each in 1973 and 1974 and 900 million tonnes in 1975. For the year 1973, the contract for the value of approximately Rs. 10 million for sale of mica was concluded with the GDR. The MMTC is now negotiating with other East European buyers for finalising export contracts for shipment in 1973.

In 1971-72, U.S.S.R. was the major recipient of mica at a value of Rs. 41.94 million, followed by U.S.A. at Rs. 20.1 million, Poland Rs. 17.29 million, Japan Rs. 15.60 million and Czechoslovakia Rs. 10.31 million.

India has vast resources of mica and as such is the largest producer of mica in the world. Mica production in 1971 was of the order of 14,468 tonnes in the form of sheets and 4895 tonnes in waste and scrap.

EXPORT TRADE IN HUMAN HAIR

India's export trade in human hair was at the highest in 1968-69 at a value of Rs. 68.22 million. Since then the export trade witnessed decline mainly because of the appearance of synthetic hair in the world market which is replacing human hair for the manufacture of wigs. In 1971-72, the export value in the line was only Rs. 12.16 million. Besides the preference being given to synthetic hair, the Chinese hair started moving rapidly into Korean and Hong Kong markets which are supplying them to the major importer, namely, the U S.A. But the phenomenon of falling demand for human hair has come to be felt not only by the Indian exporter but even the competitors, South Korea and Hong Kong. It was reported by the representative of M/s. Wigs India, Madras, who visited Far East in March 1972 for studying market conditions, that in Korea, only 11 out of 61 wigs manufacturing factories were using human hair. In Hong Kong more than 200 factories closed down during the past one year due to higher wages and low productivity.

In order to encourage the offtake of human hair from India certain measures have been taken by the Government. The floor price restrictions on human hair exports were removed during 1970. Originally, the export was allowed only on letter of credit terms; now facilities for easier payment terms have been made to the foreign buyers. The State Trading Corporation of India commissioned a special survey of human hair products in U.S.A.

EXPORT PERFORMANCE IN CASHEW PRODUCTS

India's exports of cashew kernels during 1971-72 at 60,800 tonnes, valued at Rs. 617.30 million were larger by nearly 10,000 tonnes or about 21 per cent in quantity and by Rs. 96 million or 17.5 per cent in terms of export earnings. The offtake by the U.S. market, which is the best market, showed a significant increase with a share of Rs. 287 million during 1971-72 as against Rs. 245 million worth of purchases during 1970-71. Exports to the Soviet Union also improved from Rs. 147 million to Rs. 180 million and to Canada from Rs. 25 million to Rs. 29.2 million.

The export value amounted to Rs. 17.05 million in respect of U.K., Rs. 15.60 million for Japan, Rs. 13.44 million for Australia, Rs. 9.72 million for Hong Kong, Rs. 9.36 million for Netherlands, Rs. 7.67 million for German Democratic Republic and Rs. 7.11 million in the case of Czechoslovakia during 1971-72.

Exports of cashew kernels in the first half of 1972-73 (April-September 1972) were 37,390 tonnes at a value of Rs. 395 million against 33,595 tonnes valued at Rs. 341 million during the corresponding period in the previous year. In view of the rising trend in the export earning, it is hoped that the export target set for 1972-73 for 75,000 tonnes valued at Rs. 665 million will not be difficult to achieve.

A consistent uptrend in cashew kernel exports in the future will indeed depend on availability of raw nuts to the processing units. Presently nearly 70 per cent of India's requirements of raw nuts are met by imports from East African countries. Since these countries are developing their cashew industry, it is recognised that the ratio of indigenous production to the total requirement should steadily go up.

QUALITY CONTROL AND EXPORT TRADE

A large number of export items in India are placed under compulsory quality control and pre-shipment schemes with a view to inspiring confidence among overseas importers as regards the quality and standard of Indian goods.

Besides the various quality control techniques adopted by the trade and industry itself in the country, the Government of India enacted the Export (Quality Control and Inspection) Act 1963 providing for sound development of trade through compulsory quality control and preshipment inspection. The Act empowers the Government to notify commodities to be brought under compulsory quality control and preshipment inspection. Today over 90 per cent of India's exports have been covered under this statutory system. Once a commodity is notified, it cannot be exported unless it is accompanied by a certificate of export-worthiness issued by an Export Inspection Agency recognised for this purpose under this Act. The items covered include a number of engineering products, organic and inorganic chemicals, rubber products, rubber beltings, inorganic beltings, refractories, plastic products, pesticides and their formulations, paints and allied products, jute and coir products, coir yarn, food and agricultural products, footwear etc.

While notifying a commodity under the Act, the Government also prescribes standards for the commodity below which goods cannot be declared exportworthy. Also, a procedure is laid down for exercising quality control and methods of test at the time of preshipment inspection of goods. Consignments, unless accompanied by certificate of export-worthiness, are not allowed by the Customs to be loaded into the ships.

In the formulation of standards for export, besides consulting the trade and industry within the country, special note is taken of the national standards obtaining in different countries of the world framed by their National Standards Bodies. The policies of Codex Alimentarius Commission (which is a joint Commission of WHO and FAO) is also kept in view. Particular and primary consideration is given in determining the export worthiness of a consignment in tune with the contractual specifications between the buyer and the seller. A sub-standard product is not permitted to be exported even if the importer abroad is willing to buy it by mutual understanding.

Under the Act, the Export Inspection Council of India was established in 1964. This has prominent representatives of the trade and industry and technicians drawn from various fields. The Council is the apex body for controlling all activities of compulsory quality control and preshipment inspection of export goods, including jute and jute products and coir, but excepting textiles. The work of pre-shipment inspection of textiles, including knitted garments, is looked after by the Textiles Committee, Bombay, which is established under the Textiles Committee Act, 1965.

In this task, over 5,000 technicians are employed both in the Governmental as well as private Export Inspection Agencies. The Government Export Inspection Agencies alone have now a total of 37 offices located in different parts of the country catering to the industrial, mineral and agricultural complex of the area in which these are located. Inspection and testing of samples is done in well-equipped laboratories having most modern and sophisticated instruments.

The efficacy of the quality control and preshipment inspectin is borne out by the growing export trade of the country. Besides traditional export items like agricultural produce, textiles and jute manufactures, the country's range of exports today, includes a large variety of sophisticated engineering products, like locomotives, automobiles, machine tools, industrial machinery, heavy and light electric equipment, chemicals and allied products like rubber, plastics, paints and varnishes, paper, glass, and ceramics, refractories.

INDO-LIBYAN SHIPPING SERVICES

The Shipping Corporation of India have recently decided to provide on an experimental basis, a direct shipping service between India and Libya. The first vessel on this service "State of Gujarat" is to load cargo from the West Coast of India by the middle of January next year. The next two sailings will be provided from Calcutta by "Vishva Vandana" in the middle of February and "Vishva Kanti" in middle of March.

INDO-SPANISH AGREEMENT ON ATOMIC ENERGY

The Indio–Spanish Agreement for peaceful uses of atomic energy was recently signed. The five-year agreement provides for exchange of scientists and technical personnel between the two countries besides exchange of nuclear information.

The first agreement with Spain was signed in March 1965 and that was extended by two years.

The latest agreement provides for procurement and sale of nuclear materials and equipment as well as work on joint projects, mutually agreed upon.

INDUSTRIAL DEVELOPMENT AND DIVERSIFICATION

SPOTLIGHT ON COMPUTER INDUSTRY

Over 160 computer systems are in use in India today. The first digital computer in the country was installed in 1956 at the Indian Statistical Institute (ISI), Calcutta. The computer was British HEC 2 model. The Calcutta institute subsequently acquired a Russian URAL computer.

It was in 1961 that the first indigenous electronic digital computer TIFRAC was built and commissioned by the Tata Institute of Fundamental Research. The Tata Institute developed later an on-lines data processer. The Jadavpur University in Calcutta were successful in developing their computer-ISIJU in 1965 in collaboration with the ISI.

The Electronics Group at the Bhabha Atomic Research Centre (BARC) gave to the nation their first highspeed real time digital computer, the TDC-12 which can perform 250,000 additions or subtractions per second. In 1968, the commercial manufacture of the TDC 12 system was taken up by the Electronics Corporation of India (ECIL), a department of Atomic Energy Undertaking in the public sector. In March 1971, the first TDC 12 rolled out of ECIL's Computer Division. The Corporation have an ambitious programme to manufacture and instal over 130 computers by 1975-76. The target of ten computer installations in 1972-73 is to be increased five-fold for 1975-76. The capital expenditure by that year is expected to reach a level of Rs. 43 million providing employment to over 2000 engineers, scientists, technicians and others.

The ECIL have plans to market a larger third generation system also. The machines using the third

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generation technology are expected to be on par with similar systems elsewhere in the world, both in terms of performance and reliability. Many of the applications already envisaged for ECIL's third generation computers are the control of nuclear reactors, space research, defence and scientific and data processing end-uses.

India has had the benefit of the experience of international companies including the IBM and ICL. IBM have had a commercial deal in the country since 1950 and started their manufacture in India in 1963. Their plant in Bombay was set up to manufacture key-punches and recondition and assemble 1401 central processors, unit-record and peripheral equipment. Interestingly, the key punches manufactured in India were even exported to IBM's overseas branches and subsidiaries. The manufacture of key punches of IBM also developed about 400 vendors involved in the production of mechanical parts.

The ICL also started its manufacturing operations in India in 1963. Their area of specialisation relate to the assembly of off-line card preparations equipment in their plant at Poona. Non-printing key punches, verifiers, duplicators, interpreters, etc. are also among the products manufactured indigenously. Recently, ICL have started manufacturing 1901 A series of computers in collaboration with M/s. Bharat Electronics Limited of Bangalore. The Bangalore firm is a sub-contractor in the joint venture. The indigenous effort of BEL is to be in back panel wiring assembly, main-frame assembly and final testing. The Poona factory of ICL is also engaged in the import and assembly of peripheral equipment as a supplementing measure to the current manufacturing activity in India.

SOME FACTS ON WELDING ELECTRODES INDUSTRY

Required by almost every project not only in the installation stage but even thereafter for reclamation and repair work welding electrodes have improved in their production and the welding technology is undergoing fast changes in India. With the changing concept of industrial designing, more and more riveted structures are now being changed to that of welded structures.

India today produces most of the electrode types running into hundreds of varieties for different applications such as welding of mild steel, high tensile steel, alloy steel and stainless steel as also for hard facing work.

The country's installed capacity for the manufacture of welding electrodes is of the order of 497 million running metres. There are 20 units involved in this manufacture. These units have already developed adequate technical competence and do not, therefore, require foreign collaboration for ordinary mild electrodes. In fact, some of the units are in a position to provide technical asssistance to other developing economies.

In 1970, welding electrode production was nearly 316 million running metres. The output is expected to have risen to 326 million running metres in the subsequent year. The share of special electrodes in the total manufacture is gradually increasing. The manufacturing units are bringing into their orbit of production, electrodes to cover special requirements of hardfacing and welding difficult metals. The major raw material required for the industry is welding quality mild steel. No effort is spared to improve the indigenous supply of this material as also to supplement its supply with mild steel.

The industry has already made a mark in the export arena. Iron and steel welding electrodes, fetched as much as Rs. 3.16 million in 1971-72 (1.72 million kg.) through their export supplies. Sudan and Kenya were most important buyers in the year for Rs. 0.3 million and Rs. 0.42 million respectively. Syria was another importer at Rs. 0.3 million followed by UK at Rs. 0.23 million. Among other markets that have purchased India-made electrodes in sizeable quantities were Burma, Dubai, Indonesia, Nigeria, Uganda and Yemen Arab Republic.

GROWTH OF OVERSEAS COMMUNICATION SERVICE

The overseas communication service in India has witnessed considerable growth during the last twenty-five years.

At the time of nationalisation of external communication service in 1947, the external services were extremely limited. At that time wireless telegraph connected India to U.K., Japan, Australia, China and U.S.A., while Radio telephone connected only U.K. and the Submarine cable telegraph linked London and Penang.

During the first three Five Year Plans, some of the important technological improvements were the introduction of 5-Unit teleprinter working, replacing the morse system and the error protected ARQ system. The ARQ system was a safe-guard for the teleprinter circuit from vagaries of fading due to propagation conditions on HF radio. This in turn facilitated introduction of telex working on radio and 1960 heralded the entry of India into international telex working.

ARQ working brought out the benefit of multiple teleprinter channel working along with facility to split up of the full-speed channel to fractional speed ones. This system of working provides capacity to even hire out channel to private customers for their exclusive use to work to selected destinations. The first leased teleprinter channel started in 1957 and today there are 51 channels operating to different destinations.

During the Third Five-Year Plan, the external telecommunication services were expanded and modernised to introduce the currently available technological improvements. Expansion of the services in a balanced manner to reach all the regions in the country called for the establishment of regional centres along with the expansion of the main Bombay centre. Full-fledged centres were established in New Delhi, Madras and Calcutta in the years 1958, 1955 and 1960 respectively, when each of these centres were provided with their own transmitting and receiving stations. All these three centres along with Bombay, developed into four gateway centres for international telecommunication service providing flexibility and back-up to one another.

The radiophoto service was opened only in 1943 for military and war publicity purposes. The equipment was installed in Poona and the pictures had to be relayed by post to other places in India. In 1948, new equipment was installed at Bombay to reduce the delay in transmission by post. Radiophoto services were subsequently inaugurated at other centres : at New Delhi in 1954, at Calcutta in 1958 and at Madras in 1966. With the establishment of radiophoto service, at the four gateway centres, Overseas Communication Service undertook to operate inland photo-telegraph service - New Delhi, Bombay, Calcutta and Madras for and on behalf of Posts and Telegraphs. Oversea Communication Service also operates a newscast servic from the New Delhi centre on behalf of External Affair Ministry for pick-up of Indian Embassies abroad Broadcast transmission facilities are also provided fo some of the news agencies in India.

By the end of the third Five-Year Plan, the numbe of direct circuits increased to 32 wireless telegraph circuits, 32 telephone circuits, 32 telex channels and 18 phototelegraph circuits.

Currently, within the first year of introduction of satellite service in 1971, telephone traffic in the country has recorded a growth of 250 per cent. Nearly 90 per cent of all the calls from India now flow on satellite channels.

The satellite circuits achieved so far are : phone channels 47; telex channels 46; telegraph channels 10 and leased teleprinter channels 29. India joined the International satellite consortium (INTELSAT) in 1965 and the country's earth station at Arvi (Maharashtra) was completed by the Department of Atomic Energy and taken over by the Overseas Communication Service (OCS) in 1971. Since the commencement of the commercial operation of this earth station, the service through the satellite has expanded to cover 7 countries and through their earth stations to cover 7 other countries.

Considering the importance of satellite telecommunication facility, it has been planned to set up another earth station at Dehra Dun to serve for the Northern region and also to act as a back upto the first one at Arvi. The work on the construction of this station has begun and it is expected to be ready by mid-1974.

The development of satellite communication system in India has recently made a landmark with the tracking of Apollo 17 and receiving its data signals by the Experimental Satellite Communication station in Ahmedabad. This has been done for the first time in India. Creditably, almost all the communication equipment used for tracking the spacecraft has been designed and made at ESCES. This station is also the first satellite communication earth station established in this country and was again the first station to carry out communications tests in India via ATS-2 satellite as early as August 1967. The station will be the prime earth station for the Satellite Instructional Television Experiment.

INVESTMENT PLANS FOR FERTILISERS

It is envisaged that even in the terminal years of the Fifth Five-Year Plan (1979-80), India will need to import finished fertilizers worth about Rs. 3,000 million as the achievement of self-reliance in fertiliser production would be absolutely vital to put Indian agriculture on a course of dynamic development. The Planning Commission in the country proposes to organise a bold and massive programme of investment for the creation of additional fertilizer capacity in the Fifth Plan. The expected capacity of nitrogenous fertilizers by 1973-74 has been placed at 2.3 million tonnes. It would be necessary to plan for the creation of additional capacity between 4 to 4.5 million tonnes in the Fifth Plan period. Another two million tonnes of capacity for phosphatic fertilizers is also to be created.

Over the years, India has built up a competent research and development capability. Her engineers and technologists are now capable of designing plants and fabricating equipment. They have even developed catalysts, the achievement of which even the most advanced countries could well be proud.

The installed capacity is, however, not being utilised fully. In nitrogenous fertilizers, the average production over the period 1968-69 to 1971-72 was only 67.5 per cent of the available capacity. In the same period the production of straight phosphatic fertilisers was about 50 per cent and in the case of complex fertilisers it was 62.3 per cent. The total annual loss due to under-utilisation of capacity is currently of the order of Rs. 700 million. The Planning Commission is engaged with the question of increasing the utilisation of the rated capacity, at least to the extent of 90 per cent in the near future.

Simultaneously the task of full commissioning of the three plants that had been constructed is to be taken up to approximately yield 450,000 tonnes of nitrogenous fertilizers and 50,000 tonnes of phosphatic fertilizers per year. The completion of projects already under construction and the designing and the construction of eleven or twelve new projects under the Fifth Plan period is a matter of high priority.

ASIA '72 CONCLUDED

The Third Asian International Trade Fair has concluded after 45 days on December 17, 1972. It marked a big stepforward in the realisation of the objective of strengthening trade links and exploring a new era of economic cooperation in the Asian region in particular and the world economy in general. For India, the Fair had an additional significance as it coincided with the country's 25th anniversary of independence.

The Fair which was hosted by the Indian Government and organised under the auspices of the Economic Commission for Asia and the Far East (ECAFE) secured wider participation than the earlier ones held in Bangkok and Tehran. Nearly 6.5 million people visited it during its short span. A large number of high-value contracts were effected during its currency. Besides the spot commercial transaction, it has also triggered off a wider awareness of potentialities and competence of India as a viable exporter and a mature industrial nation, stated the Foreign Trade Minister at the closing ceremony of the Fair. The large number of enquiries received and the creation of conditions for even larger enquiries to follow bear testimony to this awareness. The participation of diverse nations with the different stages of economic growth was an example of constructive world cooperation for "closer partnership in progress" which was the theme of the Fair.

The Fair provided an opportunity for many developing countries of Asia, Africa and Latin America to participate for the first time on the soil of India. The participation of the East European countries was particularly impressive. Many of the developed countries evinced interest in the Fair and demonstrated their belief that international economic progress was the share and concommitant responsibility of different nations of the world.

ASIA '72 gave an opportunity to India to represent in a microscopic form the technological advance in industry and agriculture, in trade and commerce, in science and technology which the country achieved during the last two and a half decades since independence.

While declaring the Fair closed, the President of India referred to the international seminar on Transfer of Technology that was organised in collaboration with the United Nations Development Organisation and the intra-regional trade promotion talks held under the auspices of the Economic Commission for Asia and Far East (ECAFE). A large number of delegations from several participating countries visited the Fair and concluded useful agreements with India. They have all made new contacts and carried with them high impression of what they saw. India would like to use them for further expansion of trade among the developing countries and with the developed countries who participated in the Fair.

TOWARDS SELF-SUFFICIENCY IN SPECIAL METALS

As a major step to make India self-reliant in special metals and super alloys that are vital for aeronautics, rocket and missile, electronics and instruments industries as well as to plan futuristic alloys, the Government of India have approved in principle the setting up of a plant at Hyderabad. Work on the steel alloy plant which will supply needs in the manufacture of medium and long range artillery guns has already begun at Kanpur. This plant is estimated to cost about Rs. 500 million.

The proposed special metal and super alloy plant at Hyderabad will be set up with foreign collaboration at an estimated cost of Rs. 250 million. It is to be commissioned in five years from the start of construction.

The metals and alloys mentioned above constitute basic materials in the manufacture of aero-engines and air-frames They are also required for the production of instruments, telecommunication and radar equipment, television computers, power plants, sophisticated systems of land, air and sea borne weapons. They include nickel and cobalt-based super alloys, high-strength iron-based alloys, titanium-based alloys, copper-based special alloys, tungsten, molybdenum vacuum refined copper and nickel.

The demand for these special metals and alloys comes from establishments like Hindustan Aeronautics Limited, Bharat Electronics, Indian Telephone Industries, Instrumentation Limited, Indian Space Research Organisation, Atomic Energy Commission and a number of civil industries. The proposed plant is to have an initial capacity of about 1000 tonnes going upto 5000 tonnes. These metals and alloys form only between 5 and 10 per cent of equipment like combat aircraft missile or rocket or electronic instrument or equipment. But they are indeed important in view of their heat and corrosion resistance and other qualities. They also satisfy stringent limits of chemical composition, heat treatment, fabrication tolerances and performance reliability.

MEASURES TO IMPROVE JUTE INDUSTRY

India's jute industry is currently facing two major difficulties, namely, shortage of fibre and competition abroad from synthetics and Bangaladesh products. Nevertheless, the export value of jute goods in the first six months of 1972-73 (April-September 1972) fetched Rs. 1332.50 million as against Rs. 1352.60 million in the same period of the preceding year. While decline in the exports of the current year might be called a temporary depression, the long term prospects for the industry are indeed not discouraging.

The shortage of fibre has been due to a short crop of jute and mesta in the 1972-73 season. The crop estimate for the season is 5.7 million bales as against the consumption requirement of 7.1 million bales. The shortage is expected to be overcome by about 1.65 million bales of carry-forward at the beginning of the season (July 1972) and imports already effected or contracted for or contemplated at a level of 595,000 bales.

In June 1971, the Government of India deputed a Delegation to U.S.A., Canada, U.K. and Belgium to study the market trends. In the opinion of the Delegation, the situation of jute vis-a-vis synthetics has drastically changed. In response to their recommendations, Government reduced the export duty of jute primary carpet backing which should help stimulate the carpet-backing exports. It has also been proposed to undertake legislation for a compulsory levy of jute goods production for generation of funds for research and development and promotion. A joint Indo-Bangladesh study group also exists for evolving a common policy for jute and jute goods. All these steps should augur well for the jute industry in the long term.

FOCUS ON 'NIRODH'

Probably the most advertised product in India and perhaps on the Asian mainland is 'Nirodh' - a condom. By pricing the condom at a level substantially below actual cost of production, the Indian Government has made it possible to set an extremely low consumer price, more than 80 per cent below the market. Presently there are 220,000 'Nirodh' retailers. The number is to increase by more than 400,000 as demand develops.

'Nirodh' has become one of the most popular methods offered by India's Family Planning Programme. Its sales level is expected to prevent about a million births annually. According to economists, the prevention of births to such a magnitude would save more than Rs. 1300 million to the economy.

The sales of 'Nirodh' kept on multiplying - from 15.74 million pieces in 1968-69 to 29.50 million, 52.71 million and 66.55 million pieces in the subsquent three years.

SCIENTIFIC RESEARCH AND TECHNOLOGICAL DEVELOPMENT

GUM ARABIC SUBSTITUTE

A process of making gum arabic substitute from tapioca starch has been developed by the National Chemical Laboratory (NCL) Poona.

Gum arabic is used as an adhesive in pharmaceuticals and for textile printing etc.

The process developed is a semi-dry one and does not involve any complicated unit operation. The process consists of spraying of the solution of disodium hydrogen phosphate and phosphoric acid on starch and drying the material at 50°C. The product is powdered in ball mill, sieved and then uniformly heated at 150°C.

The investigations have been carried out on 3 Kg. scale in the laboratory. The product has been approved by Posts and Telegraphs Department for its use as an adhesive. However, its use in pharmaceuticals and textile printing has not yet been established.

Tapioca starch, disodium hydrogen phosphate, and phosphoric acid are main raw materials required for the manufacture of the product. All these are indigenously available.

Sigma blade mixer, ball mill, sieving machine and oven are important items of plant and equipment. All these are either indigenously available or can be fabricated in the country.

At present Gum arabic is imported in the country at a value of Rs. 7.3 milllion per year (5000 tonnes). Posts and Telegraphs Department is the foremost consumer of Gum Arabic and its requirement is estimated at about 150-180 tonnes per annum. The process developed by the NCL for production of the developed Gum will save substantial amount of foreign exchange. It will also ensure regular supply of this material.

PROCESS FOR BI-METALLIC POWDERS

A process to produce Bi-Metallic powders of the copper lead and leaded bronze has been successfully developed by the National Metallurgical Laboratory (NML), Jamshedpur recently.

These non-ferrous pre-alloyed powders are required to be made by a process of atomization, wherein a stream of molten pre-alloyed metal is atomized by a stream of pressurized fluid.

Basic raw materials required for the production are copper, lead and tin and all these are indigenously available. For a 1000 kg. per day plant, i.e. upto 300 tonnes/year, it is estimated that the general range of requirements (allowing for upto 5 per cent manufacturing losses) would be (i) copper-lead powders which will form the bulk of production (upto 200 tonnes/year) will require upto 55 tonnes of lead, one tonne of tin and 254 tonnes of copper per year (ii) Leaded bronze powders which will be produced upto 100 tonnes per year, will require upto 11 tonnes of tin, 11 tonnes of lead and 83 tonnes of copper per year.

The basic equipment required for the integrated production of bi-metallic pre-alloyed copper-lead and leaded bronze powders will include raw materials storage facilities, melting units, metering arrangements, atomization unit, dewatering and drying equipment, sieve separation and blending equipment, sieve analysis and other process control media and packing/despatch arrangements. The equipment can be designed and fabricated indigenously. National Metallurgical Laboratory is in a position to supply the complete engineering for the process for 1000 kg./day (or higher capacity) units in the form of a detailed Project Report and the necessary follow-up project engineering services.

Bi-metallic powders also called pre-alloyed powders of the copper lead and leaded bronze varieties are widely used in industry for the production of sintered bearings required in internal combustion engines and other related applications. These powders are required to conform to close specifications related to composition, apparent density, flowability, particle shape and screen analysis in order to yield sintered products of the desired quality.

While no ISI Standards are available at present for these materials, the general range of specifications cover alloy powders of 7.5 per cent to 31 per cent lead, 0.2 per cent to 11 per cent tin and 69 per cent to 89 per cent copper. A typical powder used in manufacturing bi-metallic bearings is copper lead 70/30 containing 29 to 31 per cent lead and balance copper. Another typical powder is Copper-Tin-Lead 80/19/10 containing 9 to 11 per cent lead, 9 to 11 per cent tin and the balance copper. Other major properties specified are flowability (flow factors), apparent densities and sieve analysis. These powders can be made to a wide range of user's specifications by the process developed at National Metallurgical Laboratory.

The entire requirements of this material are met through import. It is anticipated that several plants producing 1000 kg. per day (single shift) will be economically viable and the product will find a ready market in the field of sintered bearings manufacture. It is also expected that considerable scope exists for the export either of the pre-alloyed powder or of the finished sintered products. The bi-metallic powders produced have been compared with imported powders of equivalent specifications and found to be fully as good.

Units for production of bi-metallic powders can be set up at any location such as light or medium scale Industrial Estates as the space, power and other utility requirements are quite modest. Raw materials handling is also uncomplicated as is the handling and shipping of the product.

Location of a unit near the market for the product would of course be preferable. Installation as a captive unit in a sintered products plant would also be of great advantage to the over all economies.

HUMAN CHORIONIC GONADOTROPIN

A process to manufacture human Chorionic Gonadotropin (HCG) has been developed by the Indian Council of Medical Research in New Delhi recently.

Human chorionic Gonadotropin (HCG) is useful in the preparation of reagents for the detection of normal pregnancy and ovulation and also pathological conditions like choriocarcinoma and molar pregnancy and in the treatment of infertility in the human male and female and foetal salvage.

In the process, human pregnancy urine is collected and treated with kaolin at controlled pH. The mixture is stirred and left in cold overnight. The kaolin cake thus obtained is separated washed first with water and then with aqueous ammonia. The pH of the washings is adjusted with acid. The precipitate obtained at this stage is separated by centrifuging and discarded. The clear supernatant liquid is taken and after adjusting its pH is mixed with acetone and left in cold to allow crude HCG to precipitate out. This is washed and purified.

Depending upon the concentration of the harmone detected in urine or blood in a given clinical condition, it is possible to predict whether the sample of urine is from a case of pregnancy, at ovulatony period or due to pathology i.e. choriocarcinoma or vesicular mole.

The reagents consist of a suitable dilution or an antiserum to HCG and red blood cells treated with formalin followed by tannic acid and subsquently coated with the harmone.

The investigation has been carried out using 25 to 30 litres of urine per day and about 5 grams of purified HCG has been prepared. No pilot plant trials have been carried out. The product has been tested and found to compare well with the International Reference Preparation (IRP) supplied by the World Health Organisation. The keeping qualities were found to be better than for IRP Standard. HCG prepared at the IRR is primarily being used for the preparation of diagnostic reagents, for treatment of female infertility and for foetal salvage in cases with bad obstetric history.

Raw materials required in the manufacture of HCG are urine of women during 6th to 12 the week of pregnancy which can be collected from hospitals, large housing colonies etc. and chemicals. All these are indigenously available.

Plant and machinery required are plastic bottles, plastic vats, laboratory glassware and a large capacity refrigerated centrifuges. Except the last item, all others are available indigenously. At present HCG is being imported from USA [illegible]

STEAM DIST[illegible]ION PLA[illegible] FOR ESSEN[illegible] OILS

A steam di[illegible]ion unit wherein essential oils can be recovered from essential oil bearing plants has been developed by the Regional Research Laboratory, (RRL) Bhubneshwar.

In this unit, after distillation, the waste material is replaced by fresh stock without much loss of heat and time. Such units are specifically suited to operate under condition prevalent at raw material sites, utilising readily available fuels such as firewood. The process maintains the quality of the oil comparable to ideal laboratory standards, by keeping the charge and oil away from the high temperature contacts. It also keeps the investment and operational costs low and on easy plant operations.

Essential oils obtained by steam distillation is consumed mainly in pharmaceutical and perfumery industry. The residual grass as a by-product may find application in press boards making, thatching houses as fodder and as a fuel in the said distillation industries.

An experimental plant of 100 kg. of raw material per charge has been in operation for 4 months at the laboratory.

SPORTS GOODS INDUSTRY

Among India's labour intensive industries, sports goods industry figures prominently. During the last two and a half decades, the industry organised itself into a vital sector with hundreds of small, medium and large size units. The success of the industry lies in the fact that it changed its pattern of production according to the needs of time.

Presently, there are more than 650 units engaged in the manufacture of sports goods in the country. The range of production includes the items required in outdoor and indoor games. Among outdoor games the production range includes cricket bats, cricket balls, stumps, batting gloves, wicket keeping gloves, wicket keeper's and batsman's legguards, hockey balls, hockey [illegible]icks, hockey gloves, goalkeeper's pads, footballs, foot-[illegible]all gloves, badminton and tennis rockets, tennis balls, polo equipment, golf gloves, punching gloves, boxing gloves, basket balls, baseballs etc. while among indoor-games, carrom boards, chess sets, ping pong balls and bats, dart boards, billaird tables, balls, sticks, rings and rings boards etc. are produced. Besides these equipment, a wide range of instruments for physical exercise etc. are also produced by the industry. These include dumbells, chest expanders, springs, barbells or weight liftings, iron shoes, wrist grips, parallel bars, horizontal bars, jumping shoes, throwing hammers, running shoes, spring boards, etc. The industry is also producing E.P.N.S. sports wares such as sports hosiery, medals, trophies, cups etc. Today the industry is in a sound position to meet the internal

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demand as well as the exact requirements of the world markets. The main centre of production of sports goods which was located at Sialkot before partition of the country, shifted to Jullundur after partition. Of the total 650 units engaged in the production, about 240 are located at Jullundur (Punjab) alone. Meerut and Moradabad are the main centres of production in Uttar Pradesh having 120 units, followed by Delhi (50 units), Calcutta (50 units), Bombay (20 units) and other places (80 units). The Statewise break-up of units is: Punjab 36.5 per cent; Uttar Pradesh 33.5 per cent, Delhi and West Bengal 7.5 per cent each; Maharashtra 3 per cent and other States 12 per cent.

During 1970-71, as against the installed capacity worth Rs. 70.00 million, the production of sports goods was of the order of Rs. 53.00 million. In fact, the production shot up to this level from Rs. 40 million in 1969-70, against the installed capacity of Rs. 60 million in that year. The figures of installed capacity and production were respectively: Rs. 55 million and Rs. 35 million in 1968-69 and Rs. 50 million and Rs. 30 million in 1967-68. The industry's installed capacity and the production is increasing year after year. In recent years, the domestic consumption of sports goods has been rapdily increasing because of general increase in the standard of living and recognition of sports as a part of education. The proportion of domestic consumption is around 70 per cent of the total production.

India's exports of sport goods are showing uptr[illegible] in the recent years. From Rs. 10.00 million in 196[illegible] the exports during 1971-72 rose to a level of Rs. 1[illegible] million. Of this, football, rugby ball covers, blad[illegible] and football requisites earned Rs. 5.00 million, while cricket requisites netted Rs. 1.90 million. The export value of hockey balls, hockey sticks and blades was Rs. 1.04 million while tennis balls, rackets and frames fetched Rs. 0.48 million. Besides, the export earning of other items was: Badminton and tennis racket presses, shuttle cocks and racket frames Rs. 0.33 million; Polo balls, polo sticks including blades shafts etc. Rs. 71,100, Non-military arms Rs. 0.52 million; fishing rods, polos and other fishing and other equipment Rs. 99,085. In addition to this, other appliances for outdoor games earned Rs. 6.61 million while appliances for gymnastics netted Rs. 110,597.

Among the countries importing Indian sports goods in 1971-72, USA, Canada, Australia, U.K., Denmark, France, Federal Republic of Germany, Nigeria, Sudan, Tanzania Republic, Iran, Netherlands, Singapore, etc. were prominent.

The Government of India have brought sports goods exports under quality control measures to ensure that only quality goods are supplied to buyers abroad. The Sports Goods Export Promotion Council is entrusted to deal with the question of laying down requisite norms of conduct and application for manufacturing and fabrication of sports products for different sports. For carrying out rigorous tests on the exportable goods, testing equipment has been installed at the quality marketing centres where the manufacturers are also afforded the facility of following the quality specifications adopted by these centre[illegible] h[illegible] small scale m[illegible] the centres in [illegible] th economic

Human chorionic Gonadotrop[illegible]

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